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REACTIONS AND RESULTS OBTAINED FROM SPECIFIC VACCINE THERAPY IN CHRONIC INFECTIOUS ARTHRITIS

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Sometimes it is of definite value to stop awhile and look back over what one has done in his special line of endeavor. In this way we get a bird's eye view of details and little things that go to make up the sum total clinical results.

We have now been using vaccine therapy as a fundamental procedure in the treatment of arthritis for a period of at least two years. In general, we feel, as we look back over cases that have been treated prior to, and the cases that have been treated during the last two years, that distinct increase in the percentage of cures and improvement has occurred as the result of our latter procedure. Such impression makes us feel that the method we are using in the treatment of chronic arthritis is worthwhile continuing and justifies us in advising others as to its intricacies. It also makes us feel that by a dissemination of information secured as a result of this management of chronic arthritis we may be able to aid the average medical practitioner, who first sees these cases in their early stages, to a greater consciousness of the possibility of securing improvement in these chronic cases. He can, thereby, be made to feel that he should not neglect them, but handle them in an energetic and systematic manner along a well formulated line of attack.

In a previous paper entitled, "Rationale of Vaccine Therapy in Chronic Infectious Arthritis," I set forth that phase of our work in vaccine therapy. It seemed to me at that time, that when a proper serological and bacteriological diagnosis had been made in the individual case of chronic arthritis, that vaccine treatment, when properly applied, with a good knowledge of what it could do in an adverse as well as in a favorable way, was fundamental in the treatment of the disease. A knowledge of what might happen in an adverse way as well as favorably is extremely necessary for the practicing physician; else he misses the entire point of the treatment. He is then likely to continue to treat the patient with increasing doses of vaccine when those being used are already too large and are causing an exacerabation of the arthritis rather than an improvement.

When the specific vaccine therapy is used along the lines that we recommend, I believe that it is much better to assume that all unfavorable reactions in the patient, while under treatment, are due to too large doses of vaccine rather than simply an exacerbation of the disease process. This assumption is tenable only when as a result of examination and thorough check-up of patient we are sure that there is not present an active focus of infection, or that some disease condition other than arthritis is present and is acting in an unfavorable way on the patient. Therefore, when an active focus of infection or some other disease process is definitely ruled out, and the patient is not making headway under specific vaccine therapy, reduce the dose markedly and watch the effect. Often you will be surprised at the better behavior of the patient under a reduced dose.

A knowledge of what may happen as the result of specific vaccine injections has been acquired by familiarizing ourselves with the work of Drs. Crowe, Burbank, Cecil and Small, and by constantly observing our own patients whom we have had under vaccine treatment.

Before I go on I want to outline the type of reactions that we have noticed in these cases when treated with specific vaccine therapy, and which closely coincides with the outline reported by Small in the Jour-

nal of Laboratory and Clinical Medicine, August, 1930, and set forth below:

GENERAL REACTION

A. *Initial Phase*—12 to 24 hours, lasting 24 or more hours.

Asthenia.
Malaise.
Drowsiness.
Wakefulness.
Blood pressure—down.
Pulse—accelerated.
Temperature — slight rise at times.
Arthritis—same, or little worse.
Weight—loss.

B. *Well Being or Euphoric Phase*—May last two to three days.

C. *Relative joint comfort.*

Secondary Phase.

1. Aggravation of joint symptoms (increase in swelling, stiffness and pain).
2. Tremulousness.
3. Nervousness—excitability.
4. Depression.
5. Irritability.
6. Anorexia.
7. Nausea.
8. Vomiting.
9. Cool, moist skin.
10. Slow pulse.
11. Lowered blood pressure.
12. Subnormal temperature tendency.

2. *Focal Reaction*—Constantly present with proper dosage.

a. Activation of objective joint signs.
b. Activation of subjective joint symptoms.
c. Myalgias.
d. Neuralgias.

3. *Localizing Reaction.*

a. Does not occur often.
b. Valuable in pointing to a closed focus of infection.
c. An acute activation of inflammation in a quiescent focus.
d. Comes on with secondary reaction.
e. Most often noted following first or second trial dose.

4. *Local Reaction.*

a. Hyperemia at site of injection.
b. Wheal at site of injection.
c. Occurs when vaccine is given intracutaneously.

Allow me to state a few words in respect to the manner of preparation of our vaccine. To begin with, men like Drs. Zinnser, Swift, Small, Kolmer, Duke and others have come out with statements that in their opinion there is an additional factor present in cases of chronic arthritis besides that of infection. This additional factor is the development in the patient of a state of extreme hypersensitiveness or what we might call a state of allergy. Apparently in those cases, as contrasted to others who carry focal infection and do not develop this hypersensitiveness, there must be something that is inherent in the individual himself and which probably has been transmitted to him hereditarily. This hereditary factor is the predisposition to become allergic. If we assume such factor to be present in these cases, *namely*, the tendency to an allergic state, then such tendency is that unknown factor found in cases of focal infection which develop chronic arthritis. This theory explains why they develop chronic arthritis while others with as severe or severer degrees of focal infection do not develop a chronic arthritis.

The allergists have proven fairly conclusively that an allergic disposition is inheritable. It may be then that this tendency to develop allergy to the products present in the focus of infection explains why rheumatism seemingly runs in families. If such a factor is present then it is necessary that vaccine therapy should be used primarily on the basis of desensitization and should be so prepared that the allergens are not changed during the preparation.

A method of keeping intact the allergens we feel can be accomplished by inactivating the organisms by means of simply suspending them in a ½ to 1% phenolized normal salt solution for a period of 24 to 48 hours in order to completely attenuate them. Such vaccine when used, and if properly obtained, will desensitize the patient to the same proteins and possibly non-protein structures to which he had become sensitive.

By preparing our vaccine without subjecting organisms to heat, we, therefore, keep intact those substances to which the patient has become hypersensitive. The reaction produced by a vaccine prepared by this method is more severe than that of a vaccine treated by heat. When the vaccine is inactivated with heat it seems to us that we are simply giving the patient

non-specific protein therapy. We are not desensitizing him by such methods because the heat has tended to change the inherent protein structures of the organisms.

When we first began our vaccine treatment we were using doses which were very small in amount when compared with the standards of vaccine therapy doses, such as are employed in the immunization of typhoid or for building up resistance to colds. Our doses ran approximately in multiples of 10 million, averaging on the whole from 15 to 20 million. Our results were not as satisfactory as we wished them to be. In some cases we definitely caused an aggravation of the patient's trouble. For awhile we were becoming discouraged with the results that we were getting. At that time, however, we were comparing our own work with that of Drs. Burbank, Crowe, Small and others. We began to reduce the dose that we used so that we were using instead of multiples of 10 millions per dose, multiples of a million. Still our results were not so satisfactory and further decrease of dosage resulted, so that we were using doses ranging from 500,000 to one million. Our results were still unsatisfactory. The patients reacted with many symptoms and much discomfort and would be in a refractory phase from one dose to the next. The patients at this point reacted as set forth in Table No. 1.

A further stepping down of dosage to the point where they were running below 100,000 followed. It was here that our results began to be more to our liking. The reactions were not so severe nor as long drawn out. They were more of a focal than of a general nature and they would last only 24 to 72 hours followed by a period of comfort before the next dose was due. We noticed that as a result of these smaller doses the patient would develop increase in strength and in vitality and in well being. They became more hopeful; less subject to depression, and began to manifest more faith in our treatment; and actually insisted on continuation of treatment even when we felt that further treatment was not indicated. This eagerness and actual anxiety to continue vaccine therapy was most apparent in those patients who had suffered with a marked degree of atrophic arthritis for many years. This hopeful attitude has developed in some of these new cases only rather recently as a result of our marked decrease of dosage. We have now come to the point where, in many cases, we begin with doses of 10,000 organisms and even then find that we cannot increase such dose and often have to reduce it.

In table No. 2 is set forth the types of reaction of patients to the smaller doses.

A case of very severe atrophic arthritis that I have had under treatment for over a year, and which has been gradually getting better, has noticed the greatest progress and improvement when the dose of vaccine contained as low as 50 organisms. With such ridiculously small doses, she experienced a reaction of some weakness and exhaustion and pains in her joints within a few hours after the vaccine was given her subcutaneously, which reaction lasted about twenty-four hours and then disappeared, leaving a feeling of well being. Such observation has led me to construct a chart of reactions that we may get as a result of vaccine therapy and to reduce the dose markedly and rapidly until such point is reached where the dose given excites only a limited or no focal reaction during the first twenty-four to forty-eight hours. If the patient experiences a general reaction, the dose is too large and the succeeding dose should be as much as 100th or even as low as 1,000th of that which caus-

GENERAL REACTION PHASES

4-6 2 3-7

PATIENT	Malaise	Exhaustion	Headache	Nausea	Vomiting	Miserableness	Temp. ½ to 2°	Puffy eyelids	Dopiness	Drugged feeling	Dizziness	Constipation	Insomnia	Weight	Blood Pressure	Pulse
G. Smith	xx	x	x			x								—	—	
L. D.	xxx	xx	xx	x			x				xx		x	—	—	
E. S.	xxx	xxx	xx	xx			xx	xx		xx	x		xx	—	—	x
G. Jones	xxxx	xxxx	xxx	xxx		xxx	xxx		xx	xxxx		xxx	xx	—	—	x
S. J. Lee			xxx	xxx					xxxx	xxxx						

— drop
x positive

FOCAL REACTION

Patient	Time interval before symptoms appeared.		Duration		JOINTS					MYALGIA			NEURALGIA		
	Hours	Days	Hours	Days	Pain	Soreness	Swelling	No. affected	Location	Chest	Back	Neck	Sciatic	Trigeminal	Brachial Plexus
J. B.		2-4		2-4	xxx	xx	xxx	Multiple	Spine Knees Ankles	xx	xxx		xx		
G. S.		2-5		2-3	xx	xx	—	Single and Multiple	Spine Knees		xxx	xx	xx		
L. D.	6	2-3		2-3	xxx	xxx	xx	Multiple	Shoulders Fingers Spine Feet		x				xxx
E. S.	12	1-2		2-7				Multiple	Feet Knees						
G. J.	3	1-2		2-14				Multiple	Feet Shoulders Hands Spine	xxx x	xx xx	xx xx	xx	xxx	
S. J. L.								Multiple and Single	Spine		xx xx	xx xx			

ed the general reaction. If only a focal reaction is elicited the dose is accordingly kept the same or reduced to 1-10 to 1-25th at the succeeding time of treatment.

It is often stated that the proof of the pudding is in the eating. I have talked about sensitization without answering a natural question that would arise in the hearer's mind, *viz*: Will not the patient become sensitized to the bacterial proteins that are being given to him for treatment? The answer is he may and sometimes does. I have more than once had to figure with such a problem. A patient receiving vaccine and progressing well would suddenly cease to improve. Additional and larger doses would make him actually ill. In addition his skin would react to vaccine doses with pin head size papules, itching and erythema as set forth in table No. 3, below. In some cases the skin sensitivity present would show up with only a few injections of vaccine, as also set forth in table No. 3, showing, therefore, the innate tendency of these patients to develop allergic reactions.

A recation not often obtained but of definite value is the localizing reaction. In some patients, following one or more vaccine injections, a stirring up of a closed focus of silent infection will occur, which would not be discovered during our systematic check up of the patient. The value of this is definite, for it turns our attention to the treatment of such a focus, which left untreated, will not result in the utmost of recovery for the patient.

Table No. 4, illustrates two cases which reacted with localizing symptoms. The patients at this point were reacting as set forth in Table No. 1.

LOCALIZING REACTION

	Throat	Naso-pharynx	Teeth	Sinuses	Prostate	Gall Bladder	Appendix
J. B.						x	x
S. J. L.			x				

In conclusion, I wish to repeat and emphasize this point, *viz*. that in our experi-

SENSITIZATION REACTIONS OF SKIN

	PAPULES			FIBROSITIS		WHEAL	ERYTHEMA	NODOSUM
Patient	Size	Color	Itching	Location	Area	Location	Location	Size
	1/4 to 1/8"	Pinkish Erythematous	xx	About Papule	Dime to Quarter	Discrete	Discrete	Dime
G. S.	xxx	x	xx	x	x	x	xxx	x
J. B.	xxx	xx	xxx	x	x	—	—	—

ence the smaller the dose the more favorable the result in cases of chronic arthritis. I might add one more observation. It is best to consider an unfavorable exacerbation of arthritis as an evidence that the dose of vaccine is too large, and quickly reduce the dose until one is giving a dosage which, according to our present standards, seems ridiculously small, yet which as a result of our close observation of these cases leads us to the belief that such ridiculously small doses are the optimum doses and sometimes even too large. Also, it is best that we continue to treat these patients on a new basis, *viz*: by the administration of vaccine doses usually running below 50,000 organisms and even below 10,000; or in some unusually hypersensitive cases, below 1000. It is best to consider unfavorable progress of cases as an evidence of adverse reactions to vaccine therapy because of too large dosage and that such reactions be a prompt indication to radically reduce the dose being given the patient.

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ULTIMATE RESULTS FROM OPERATIONS ON BILIARY TRACT

E. Starr Judd and James T. Priestley, Rochester, Minn. (Journal A. M. A., September 10, 1932), state that although cholecystectomy is now generally preferred for primary disease of the gallbladder, certain surgeons still perform cholecystostomy in a considerable number of cases. The authors' data indicate that a greater percentage of good results followed the former operation. Ordinarily the gallbladder is removed except in the presence of certain definite contraindications. If the patient is an extremely poor surgical risk, as in the presence of jaundice or a small atrophic liver, if it is anticipated that the gallbladder will be needed because of disease of the common bile duct, and occasionally if there is too much infection surrounding the gallbladder, cholecystostomy will often be preferable to cholecystectomy. If cholecystectomy is properly performed the immediate risk is probably no greater than surgical drainage of the organ, except in the cases mentioned. During 1931, cholecystectomy was performed at the Mayo Clinic in 579 cases for chronic cholecystitis with a mortality of 1.7 per cent. If it is necessary to open the common bile duct, the authors feel that primary closure is never advisable. A variable period of drainage with a T-tube, ranging from three or four weeks to a year or more, depending on the lesion encountered, has given satisfactory results. When this type of drainage is employed, complete control over the flow of bile is maintained, as it may be drained externally through the long arm of the tube to the outside, or the tube may be clamped off, thus forcing the bile down into the duodenum. If it is considered desirable, fluids may be administered through this tube. A postoperative stricture of the duct does not result from the use of the tube, nor is there any danger of a persistent biliary fistula, provided patency of the common bile duct is established at the time of the operation.

LOW BACK INJURIES WITH PARTICULAR REFERENCE TO THE PART PLAYED BY CONGENITAL ABNORMALITIES

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It is common knowledge that trauma to the lower back at times produces results which seem far out of proportion to the injury sustained. Furthermore, the resulting disability is too frequently a prolonged one, often ending in complete incapacity. In recent years, probably because of great industrial expansion and the wide introduction of the automobile, such injuries seem to have increased in frequency until the so-called "low back problem" has become a very important one. This is particularly true in industrial surgery, in the practice of which trauma to the back, the result of occupation or accident, constitutes one of the most difficult types of case encountered so far as diagnosis and restoration of function is concerned. Diagnosis in low back injuries is difficult even under the most favorable conditions and this difficulty in making a satisfactory diagnosis has led in many instances to a suspicion that no real pathology was present and that malingering was at the bottom of the complaint. While this is probably true in a certain percent of cases such a conclusion should not be arrived at without careful examination and the elimination of all possible causative factors. Failure to secure relief of symptoms after prolonged treatment has also frequently resulted in the conclusion of malingering. Here again we may not take this position unless we are quite sure that a correct diagnosis has been made and the proper form of treatment has been carried out. In other words, many of our failures to secure successful results in the management of low back conditions may be due to our own short-comings in both diagnosis and treatment, and perhaps the answer to this vexing problem lies in a better understanding of the pathology of this region and more adequate treatment based upon the pathology present. What I wish to do in this contribution is to call to your attention certain abnormalities which may be found in the lower back and discuss the manner in which such abnormalities may give rise to symptoms following trauma and may actually determine

the form of treatment necessary to secure relief.

The two regions most usually affected in low back injuries are the lumbosacral articulation and the sacroiliac articulation. Both these regions may be the seat of pathology the result of so many different causative agents that to attempt to discuss them all in the time at our disposal would be but a recital of conditions and would I am sure be most confusing. I propose then to limit this discussion to the consideration of congenital defects of the spine as the underlying pathology in persistent low back pain and disability following trauma. Such congenital defects are important in that they cause weakness in the spinal architecture, thus providing points of lowered resistance to the strain of function and so render the spine more vulnerable to injury. Since it is the lumbosacral articulation which is most generally the site of congenital defects it is this region which will be discussed; congenital defects are seldom found in the sacroiliac joint, this region, therefore, suffers to a less extent from architectural defects the result of such congenital abnormalities and will not be touched upon. It is an interesting fact in this connection that, in our experience and that of many who see a large number of low back cases, those in which symptoms are referable to the lumbosacral joint far outnumber those in which the symptoms point toward involvement of the sacroiliac joint. In our series of cases of 360, 242 cases were diagnosed as lumbosacral and 118 as sacroiliac.

The lumbosacral articulation is a very important joint. Through this articulation the weight of the trunk and upper extremities is transmitted to the pelvis. In addition, it plays an important role in spinal movements; Goldthwaite states that fully one-half the motion of the trunk below the lower dorsal region is made in this articulation. Finally the lumbosacral articulation is the point of junction between the movable spine above and the more or less fixed sacrum and pelvic girdle below; this means considerable stress even under ordinary conditions. We have, then, a joint which must combine great strength with freedom of motion, a difficult combination. To meet these requirements a definite type of joint is needed and a brief consideration of its anatomy will be worthwhile.

ANATOMY

The lumbosacral articulation in its main part inclines downward and forward about 42.5 degrees, when the person is standing erect, and were it not for the presence of supporting structures, the lumbar vertebrae would slide forward on the sacrum. These supporting structures are the articular facets of the sacrum into which the lower articular processes of the fifth lumbar vertebra fit, and the supporting ligaments. The articular facets in the lumbar region face practically inward and outward with a slight convergence toward the front which blocks any slipping forward of the vertebra above on the vertebra below. The ligaments, particularly the iliolumbar, which passes from the body and transverse processes of the fifth lumbar to the iliac crests, afford considerable support but would soon become stretched and lose their supporting character, if the major portion of the work were not done by these bony articular processes.

As stated there is considerable motion at this joint but chiefly in the direction of flexion and extension. In forward bending, or flexion, the motion at the lumbosacral joint is made partly by change in the shape of the intervertebral discs but chiefly by the articular processes of the fifth lumbar sliding upward on the opposing processes of the sacrum. With a joint acting in this manner, it is possible that if flexion were carried too far, as for example by certain forms of trauma, the articular processes of the fifth lumbar might slip entirely off those of the sacrum, allowing the vertebra to slide forward and a condition of spondylolisthesis or partial spondylolisthesis be produced. If such a displacement were to occur on one side only, the displaced articulation would slide forward and to the outside and the fifth lumbar vertebra carrying with it the entire spine be rotated forward on the side of the displacement.

Such displacements might occur due to trauma by which the body was bent sharply forward, or forward and to one side. With the strength of this articulation and its supporting ligaments, it is almost inconceivable that such a displacement could occur without producing a fracture unless there were contributing factors present, which would tend to weaken the joint, and so decrease its stability and render it more vulnerable to injury. It is the presence and character of these contributing factors and the part they play in the causation of persistent low-back symptoms that

I wish to emphasize in considering injuries to this region.

A critical survey of the low-back cases which have been diagnosed injuries to lumbosacral articulation in our clinic has led us to conclude that while there are a variety of conditions which could be considered as factors in causing weakness in this region, and so favor displacement or partial displacement of this joint, there are certain of these which seem to be more important. We will discuss these in some detail and the others in a cursory way.

The conditions which most commonly seem to cause weakness of the lumbosacral joint we have placed in two groups:

1. Increased sacral inclination.

2. Congenital abnormalities and deficiencies, such as abnormalities of the articular processes of the fifth lumbar vertebra and sacrum, spina bifida occulta, spinal clefts, sacralized transverse processes, enlarged transverse processes and enlarged spinous processes.

Many different opinions are held upon the importance of the part played by the conditions cited above in the presistence of back symptoms following injury. There are those who would ascribe to one or the other of these most of the blame; there are others who would deny that any of them play a role of importance as a contributing factor in low-back disability. Our experience leads us to believe that if we omit from our discussion such condition as osteoarthritis of the spine, a fairly common condition, general toxic conditions, tuberculosis and neoplasms, one of these pathological conditions will be found as the basis of most of the low-back injuries presenting a history of long-continued disability. All can be shown to tend to cause decreased stability of lumbosacral articulation in one way or another, and in the discussion, we will attempt to indicate the manner in which each acts, and its relative importance, as we have studied them.

INCREASED SACRAL INCLINATION

While increased sacral inclination is found in most hollow-backed individuals it is also met with in those with no apparent hollowing of the back and must in the light of conclusions arrived at by studying a large number of lateral views of the spine be considered a congenital abnormality of the lumbosacral region. It is in reality the cause of the hollow back in most cases, not the result of the hollow back. With the normal sacral inclination, we have the lumbosacral joint at a mechanical disadvantage as the fifth lumbar vertebra rests upon the top of the sacrum at an angle of 42.5 degrees. If we now increase the sacral inclination until the plane of the lumbosacral joint is a right angle, or even an acute angle, as it is in some cases, it is obvious that the stability of the articular processes between the fifth lumbar verebra and the sacrum will be greatly reduced and the major part of the support of the fifth lumbar vertebra will be thrown upon the ligaments. With such a weak architectural arrangement it is not difficult to appreciate that if this joint is subjected to undue stress or strain the ligaments may readily be stretched or ruptured and severe local damage done. It is even conceivable that deprived of the checking action of the supporting ligaments there may occur an actual subluxation of one or both of the lumbrosacral articulations. I do not believe however, that such an actual dislocation or spondylolisthesis occurs in this way; spondylolisthesis is due to a different type of congenital defect. Once damage has been suffered by such an architecturally weak articulation it is certain that recovery will be slow and persaps never complete. In 35% of our cases this condition was considered the causative factor, not only in predisposing the lumbrosacral joint to injury but in the persistence of symptoms.

Congenital abnormalities of the spine of a developmental character are not uncommon and the most usual site for such abnormalities is in the lumbosacral region. George in his valuable contribution on this subject states that 35% of all spines X-rayed in his laboratory for any purpose showed congenital abnormalities in the lumbosacral region. Fully 50% of these abnormalities exist without symptoms. Any considerable variation from the normal in this region, however, must be taken into consideration as a contributing factor in causing potential weakness of the lumbosacral articulation. Of these congenital abnormalities, we feel that abnormalities in the articulation between the fifth lumbar and the sacrum, spina bifida occulta of the first sacral segment and spinal clefts are the most important in causing

an architectural weakness in this region, the others are less so.

ABNORMALITIES OF THE ARTICULAR PROCESSES

It is extremely difficult indeed to demonstrate in a roentgenogram abnormalities of the articular processes, it being frequently necessary to arrive at a conclusion regarding this condition by the appearance and position of the fifth lumbar vertebra. Goldthwaite, however, has demonstrated these variations and described two types of articular processes; one of these is the so-called crescentric articulation, the lateral portion extending backward almost a a right angle with the anterior transverse portion. Such an articulation by its shape forms a very stable joint and one difficult to dislocate. The other type consists of a flat articular surface with the axis nearly transverse. It is obvious that such an articulation is much less stable than the preceding type, especially as it may have a decided forward inclination instead of the usual vertical position. We have seen this type of articulation at operation and demonstrated the extreme mobility of the joint which results, so much so that it was quite evident that a definite amount of slipping forward of the articulating processes on one or both sides could very readily occur and a subluxation result.

These two types may occur in the same individual, giving us a crescentric articulation on one side and a flat articulation on the other side giving a weak joint on one side and a strong one on the other. With trauma applied in the proper direction, it is quite possible for the strong side to remain in place while the weak side could readily be levered out of position and a subluxation produced.

That this variation in the shape of the articular processes of the fifth lumbar vertebra and sacrum play a very important part in causing a potential weakness of the lumbosacral articulation seems evident from our series of cases. This condition was diagnosed as the most probable cause of trouble in 23 out of 56 cases in a study made of a special group. The diagnosis in these cases was based upon a very careful study of the X-rays and actual inspection of several of these articulations at operation. In 6 out of 17 cases operated upon, we were convinced that a more or less flat articulation was present.

SPINA BIFIDA OCCULTA AND LATERAL CLEFTS

These conditions are due to the failure of the three or sometimes five (in the fifth lumbar) centers of ossification of the vertebrae to unite properly, resulting in incomplete closure of the neural ring (spina bifida occulta) or failure of the lateral masses to unite so that the vertebra remains separated into two distinct parts connected by fibrous tissue only. Sir William Turner in his monograph on the human skelton in the Challenger reports states that spinal clefts existed in 5% of all the subjects examined. Such clefts were found in only 8 cases of our series of 242. It is possible however that many may have been overlooked in the earlier cases because of inadequate radiograms. Spina bifida is easily shown by X-ray, the clefts do not show except under very favorable conditions and with carefully taken roentgenograms.

Spina bifida occulta of the first sacral segment results in a very unstable articulation between the sacrum and the fifth lumbar vertebra. This instability we have proven many times at operation when it was demonstrated that the first sacral segment was extremely loose, so much so that it may be grasped in a pair of forceps and moved extensively from side to side and up and down.

Lateral clefts in the fifth lumbar vertebra produce a similar lack of stability in this vertebra since they permit of independent action of the upper and lower articular processes of the vertebra instead of a simultaneous one and false motion at the cleft. It is quite evident that given a fifth lumbar vertebra with such deficiencies we have an architectural weakness which can allow of considerable abnormal mobility between the various segments of which it is composed. As evidence of the possibilities of what may occur in such a vertebra we find occasionally that even under the stress of ordinary use the fibrous tissue composing the clefts yields and stretches and a gradual slipping forward of the body of the fifth lumbar vertebra takes place and a true spondylolisthesis occurs.

Here again it is conceivable that when a spine in which we have a spina bifida occulta of the first sacral segment of clefts in the fifth lumbar vertebra is subjected to the increased strain and stress of trauma it may prove unequal to the bur-

den imposed upon it, give way at its weak point and damage be caused which it is difficult to repair with resulting persistent symptoms.

ENLARGED AND IMPINGING TRANSVERSE AND SPINOUS PROCESSES

The transverse processes of the lumbar region vary greatly, some are short and thin, and others are large and thick. The large transverse processes may at times extend so far laterally and be so shaped as to impinge upon the top of the sacrum or the ilium, at times they are completely sacralized. Spinous processes may be unduly long and so impinge upon those below or may do so because of extreme lordosis. It is conceivable that such impinging processes in certain forms of trauma such as forward and lateral bending or hyperextension may, by introducing a levering force, bring about a slipping of one of the articular processes, particularly if one or both processes belong to the weak type. Great importance has been given to these last two types of abnormality as a complicating factor in injury of the lumbosacral articulation by some writers, particularly Goldthwaite. While convinced that they probably play a part, we feel that their role is so largely a matter of conjecture that we prefer to consider them as occasionally responsible rather than frequently so.

These four types of abnormality of the lumbosacral region are so far as our experience goes, those most frequently present in patients giving a history of persistent low back symptoms following injury. The association of such abnormalities and persistence of symptoms seems to us so important a feature of the pathology of low back injury as to deserve careful consideration. In only 3.5% of cases in our series in which low back symptoms persisted in spite of treatment could no abnormality be found and the spine classed as normal.

We have in the lumbosacral articulation, a joint which is subject to great stress under ordinary conditions of life, while as the result of occupation or injury, this stress may be tremendously increased. An articulation which is normal in structure should be capable of withstanding such increased stress without suffering more than temporary damage to its supporting structures, muscles and ligaments. We have, however, in apparently 35% of all individuals abnormalities and deficiencies in the lumbosacral region, which seem to have a very definite tendency to decrease the stability of this articulation, and so render it more liable to injury and displacement, when subjected to undue stress by reason of trauma incurred. In estimating the severity of an injury to the lumbosacral region, such structural weaknesses must be taken into consideration, as they unquestionably have a direct bearing upon the course and final outcome of the condition.

DIAGNOSIS

The symptoms which result when such architecturally weak spines as we have been discussing are injured are as a rule clean cut. Time will not permit of a detailed consideration of the symptom complex but there are four outstanding signs which should make us strongly suspect a congenitally weak spine. These are (1) persistent dull pain in the lower back referred into both buttocks increased by activity; (2) persistent local tenderness in the region of the lumbosacral articulation and iliolumbar ligaments; (3) definite increase of pain on either extreme hyperextension or hyperflexion of the spine; (4) feeling of weakness and insecurity in the lower extremities.

I should like here under diagnosis to make a definite plea for careful X-ray examination of the spine in low back injuries and a more intelligent study of the plates when taken. An adequate roentgenological examination of the spine should include a clear anterior posterior view and two lateral views, one with the spine completely extended and one with the spine completely flexed. Often what seems to be a normal spine in one position becomes a definitely abnormal one in another position and unless plates are taken to show the spine in all positions information of great importance in diagnosis and treatment may be missed.

A correct diagnosis in back injuries is essential to successful treatment, the cutting down of the period of disability and restoration to normal or as near the normal as can be attained. On the other hand, failure to correctly size up the situation and consequent long disability period with its discouragement and loss of faith in ultimate cure, makes the low back problem a very difficult one. The making of a correct diagnosis is not always easy but a careful history, a painstaking examination with a proper understanding of symp-

tomatology and finally good X-ray pictures taken in the anterior posterior and lateral planes, interpreted with an understanding of the possibility of abnormalities involving this region, should enable one to make a fairly accurate diagnosis, give a prognosis based on pathology and lead to the institution of proper and result-producing treatment.

TREATMENT

In considering the treatment of cases of lumbosacral injuries, it should be clearly borne in mind that such injuries involve two types of spine—the normal spine and the abnormal spine. It is our opinion that a very different attitude must be taken as regards both prognosis and treatment when dealing with a normal spine and an abnormal one. Injuries to normal spines form the bulk of the spinal injuries both in industry and in ordinary civil life. In injuries to normal spines, tears of ligaments, aponeurotic and muscular structures should under adequate treatment, follow a normal course to recovery, just as a sprain or strain or dislocation of any normal joint does; with this difference—that such back injuries will be slow in recovery because of the greater difficulty in giving them adequate fixation. In injuries to the abnormal spine, we cannot in the majority of cases expect such a normal convalescence. We are dealing with a potentially weak structure which is capable of functioning under ordinary conditions quite satisfactorily; when, however, such a structure has been injured, it will rarely return to anything like its former condition; and frequently the result is a more or less incapacitated individual, incapable of returning to an occupation which requires much physical exertion. This difference must be clearly distinguished and kept in mind in outlining a plan of treatment for injuries to the lumbosacral region.

Let us first consider the treatment of an acute case, be it in a normal or potentially weak spine. Remembering that an injury in this region has possibilities of being a very disabling one, the patient should be put to bed, properly strapped and an X-ray taken in the anterior posterior and lateral planes. A careful examination should then be made, taking into consideration the X-ray findings and the seriousness of the injury estimated. If the spine is a normal one, adequate fixation by strapping, brace or plaster cast should be given and maintained for a period of time commensurate with the severity of the symptoms. As soon as the acute symptoms disappear, physiotherapy in the form of massage, hot and cold baths and therapeutic light, and finally exercises should be used to bring about as rapid a return to normal as is possible. Our experience has been that adequate fixation from the first often saves a great deal of time in convalescence. Also too early attempts at resumption of function are to be avoided—back injuries even in normal spines require a longer period for recovery than most joints and cannot be hurried.

In cases in which muscle spasm and deformity persist and improvement is not as rapid as it should be, we are accustomed to give an anaesthetic and manipulate the spine as it is our feeling that in such cases the muscle spasm is maintaining the malposition of the articulation and must be eliminated. This manipulation is carried out with the patient on his back on a hard table with the pelvis fixed. The extremities are then in turn raised and flexed with the knee fully extended until a normal degree of flexion of the hip joint is possible. To accomplish this, frequently requires a prolonged stretching. A plaster cast is then applied from the lower ribs to the knee on the affected side, this remains on from two to three weeks, after which the usual limbering up treatment is given. With this procedure we can in about 50% to 60% of cases secure relief of symptoms and a comfortable back and insure a fairly rapid convalescence.

Our experience, however, with spines showing one or more of the congenital defects which we have mentioned as factors in causing the lumbosacral region to be structurally weak; *i.e.*, increased sacral inclination with prespondylolisthesis, defective articular processes, spina bifida occulta, spinal clefts and abnormal transverse and spinous processes, has been quite different. We find that such cases do not progress along a normal course to recovery; on the contrary, it is difficult or impossible to get such backs comfortable or if relief is secured, within a varying period of time, there is a recurrence of the symptoms. In other words, a period of partial or complete incapacity is entered upon, the overcoming of which taxes one's ingenuity to the utmost. As the result of a very discouraging experience with these cases, we feel that operation offers the only relief that gives promise

of remaining permanent. If we have a fifth lumbar vertebra which is structurally weak by reason of increased sacral inclination with free spondylolisthesis or one of the congenital abnormalities, and so incapable of functioning properly, its elimination as a a movable vertebra by converting it into a fixed sacral vertebra through artificial ankylosis is a logical procedure. By doing this, we eliminate the weak and symptom-producing lumbosacral articulation, and throw the burden of its work upon the articulation between the fourth and fifth lumbar vertebrae which is rarely weak and so capable of assuming quite readily the function of the eliminated joint.

I do not wish to suggest operation as the method of choice in early cases, nor can I see any good to be accomplished by stabilization in a normal spine. I do maintain most emphatically, however, that in the abnormal spine which does not respond to well planned conservative treatment within a reasonable length of time, or which readily relapses after apparent recovery, operative treatement is not only indicated but offers the only promising means of securing results, Furthermore, once the indications for operation are demonstrated, it is our feeling that procrastination gains nothing, but on the contrary, does distinct harm in that the longer the period of disability and incapacity, the more difficult is the return to normal and the greater the danger of an unfavorable psychic element entering into our problem.

In our clinic in 242 cases we have advised operation upon 23.3% of the lumbosacral cases and have actually operated upon 13 3% with only two failures so far as we can determine. In those cases in our series we diagnosed as sacroiliac, 118 or 10.7% were operated upon with no failures.

In conclusion may I summarize the points I have tried to make:

1. Congenital abnormalities of the lumbosacral articulation occur in approximately 35% of all individuals producing an architecturally weak back.

2. Clear skiagrams taken in the proper manner will reveal the presence of congenital abnormalities if carefully studied.

3. When subjected to trauma the normal spine should and ususally does recover under adequate treatment.

4. When subjected to trauma the congenitally weak back returns to normal much more slowly and much less completely than does the normal spine.

5. With a definite congenital defect present if adequate conservative treatment does not result in relief and elimination of disability stabilization of the involved region is definitely indicated.

DISCUSSION: *Dr. Earl McBride,* Oklahoma City.

I think that this is such a timely paper that we ought at least to give it some discussion. I would like to hear from you gynecologists and urologists. Each fellow has his own ideas, and there are so many causes attributed to backache that we ought to have a little more discussion. Dr. Dickson certainly extended some particular points here for your consideration, and while most of the cases I see I consider orthopedic, I am sure you men in general practice see cases that you think are not orthopedic at all. I am glad Dr. Dickson stresses the lumbosacral joint. showing that so many things happen to it rather than the sacro-iliac joint. Most of the cases that come in are referred as having sacro-iliac pain, and nearly always it seems that it is lumbosacral rather than sacro-iliac. At least in my experience the greater number has been lumbosacral. I think we should have some more discussion on this subject.

Dr. James C. Johnston, McAlester.

In seeing a few of these cases by means of the X-ray, the importance of the angle at which they are X-rayed is very abundantly borne up. An angulation of 42½ degrees can be very clearly and definitely determined if one will sufficiently incline the tube to get a true outline of the fifth vertebra. This can be done laterally or antero-posteriorly, but you must follow the angle of the lines which determine the position of the vertebra to do that. That means more than one lateral and more than one antero-posterior. I have seen this in making pictures in our mining district there at McAlester. Naturally some of the injuries are quite old; they show up in industrial cases. Where fusion is indicated, it cleaves sharply that there must be a very secure X-ray examination so that you know you are not dealing with a sacralization already. Sacralization is one thing and fusion with the sacrum is an entirely

different proposition. One causes pain, the other should give relief. Another thing that happens is that we have the common congenital defects—these run about thirty-five percent. I was in Jobe'c clinic when he made the statement that only two in seven of these cases were giving symptoms referable to back injury or back pain, but in disease, of course, the very fact of this congenital defect adds to the possibility of increased pain or aggravated condition under the slightest provocation, and particularly is that true in jackknife fractures where the patient is bent forward and there is superflexion. Not very many people say much about the late formation up of the lumbar spinous process on the intravertebral tissue. There is a thin plate of bone laid down there at about the age of 21, and this does not always occur in normal formation. Sometimes there is over-production, and we have what is often diagnosed as some form of arthritis. I have seen several plates where they tried to make it appear the result of some injury and some where the honest mistake was made of thinking it was arthritis. As this process forms, if injury occurs at this time, you get there just what you do in children where bone is in the process of formation, you get over-production. I just want to call your attention to these facts from an X-ray standpoint.

Dr. Smith.

In applying casts in these cases, it is not always taken into consideration that you cannot immobilize the fifth joint by applying a cast extending from the nipple line to the thighs. You can't do that unless it is applied so exceedingly tight as to give discomfort. I wore a cast for three months, and it took me that long to find out I was more comfortable without it. If you do put these on tightly enough to secure even a degree of immobilization, it is so tight that you feel the effect before you walk one block. The cast should extend from the nipple line down to the knees.

Dr. Dickson:

I am quite convinced that low back pain has so many different aspects that to attempt to discuss them all would result in a hopeless muddle, so I confined mine to rather a small specific group. In one of these cases that I saw, the patient was sent in as a malingerer because he said he could not move his legs. He very obviously had no paralysis, the reflexes were there, he could not have any lesion of the cord of serious nature. But when you took that man and X-rayed him we found that there was a cleft in the vertebra that opened up. The motion was all taking place in this cleft. He was put up in plaster, physio-therapy started, and in four weeks he went home, able to walk and able to go to work. Next week or next month he may have the same thing over again. The man should be stabilized, but we did not feel like stabilizing him, although he will come to it sooner or later. We see a good many cases that have been handled over a long period of time. Rarely do we see an acute case. I am glad that Dr. Johnston brought out the question of Jobe's statistics. Fully fifty percent of congenital defects have no symptoms at all. They go through life perfectly normal and don't even know they have one, but the fact is, with such a weak articular structure in the joint, if the right stress comes, those are the cases that get the symptoms and don't get well. I believe as much harm is done by too prolonged stabilization as by too short a period. I believe very firmly that we have over-treatment of many cases. I will even say that I am leaning now towards leaving off plaster, putting traction to both legs and a traction band around the pelvis. You can start physio-therapy much sooner. I believe, honestly, the time is coming when plaster will not be used so extensively as now. Immediate immobilization in low back pain will very often save weeks in time of convalescence. During acute symptoms immobilize them, put them up like normal backs. When the acute symptoms are over, get your immobilization over and start your limbering-up exercises, not carrying it to extremes but gradually increasing it. I think massage and limbering-up exercises are more important than physio-therapy. It is astonishing what you can do with many of these obstinate backs which seem so hopeless. Congenital defects I am operating more and more, after proving to myself the results. I recently had a case with an interesting history—this woman while playing golf jumped from a bunker and immediately had extreme pain in her back. She came to Kansas City, and much to my astonishment I found this—there was a piece broken off of the fifth lumbar vertebra. I could not explain it; I had never

seen anything like it before. She was put to bed and apparently got well, and went along until October or November, several months later, when she again had pain in her back. We put her through the X-ray procedure again and then we found a spinal cleft. As she jumped, this fibrous tissue gave enough so that this vertebra slipped forward and all the weight came on this point. She could not have done it in any other way. She was stabilized and got along well except for having some trouble in her shoulder. Those are the type of cases that do not get well unless you stabilize.

ORAL THERAPY IN CONGENITAL SYPHILIS

The use of Stovarsol in congenital syphilis by pediatricians abroad induced Maxwell and Glaser to investigate the value of the therapy. The results achieved in ten cases are reported in full in the Am. J. Dis. Child. 43:1461-1489, June, 1932.

In four cases the Wassermann reactions were negative when treatment was begun but as the parents were 4 plus treatment was not delayed. These cases had remained negative over a period of thirteen months when reported. The other six cases had positive Wassermann reactions. Three were reversed after the first course of treatment, two at the end of the first rest period, and the other at the end of the second course of Stovarsol therapy. The results in these infants, all under one year of age when treatment was begun, are encouraging. Children over one year of age did not respond so readily.

Other advantageous features of Stovarsol therapy in congenital syphilis in infants and children as reported are; the remedy is administered by mouth, and the patients generally show improvement in appetite, general vigor and energy.

The authors believe that Stovarsol has a definite place in the treatment for congenital syphilis. Administration must always be under the direction of the physician as toxic symptoms may appear. In the majority of cases these symptoms are evidently mild in character but occasionally they may be severe.

Stovarsol is a pentavalent arsenic preparation allied to arsphenamine in its chemical constitution. It is manufactured in this country by Messrs. Merck & Co. Inc., of Rahway, N. J.

Cocomalt is accepted by the committee on foods of the American Medical Association. This food-drink is especially useful in the treatment of undernourished children and for expectant and nursing mothers. It is a scientific food concentrate produced by an exclusive process from barley malt extract, partially defatted chocolate and milk, sugar, whole eggs, flavoring and added Vitamin D. It comes in powder form, easy to mix with milk—hot or cold. So mixed, the result is a tempting, chocolate flavored food-drink —unusually high in caloric value yet easily digested and readily assimilated. Children love it. For samples, write R. B. Davis Co., Hoboken, N. J.

ARTHRITIS*

FRANCIS E. DILL, M.D.
OKLAHOMA CITY

Statisticians, commissioners of public welfare, officials in the United States public health service, have variously estimated the cost of chronic illness in this country between five and nine billion dollars yearly, depending upon whether the cost of illness alone, or associated with the loss of wage earning capacity, is considered. True it is, that chronic illness is one of the greatest causes of poverty—arthritis and rheumatic conditions certainly are a major part of chronic affections, and as such, should be, to us, comparable with tuberculosis and cancer as problems of our own generation.

The International Committee for the Control of Rheumatism, are individually and collectively attempting to elucidate some of the problems of chronic arthritis. They consider in particular the following types:

1. Atrophic arthritis — synonymous with rheumatoid arthritis, arthritis deformans, proliferative arthritis, Still's disease and Strumpel-Marie type arthritis — all of which are generally of an infectious nature.
2. Hypertrophic arthritis — synonymous with osteo-arthritis, degenerative arthritis and non-ankylosing arthritis.
3. Infectious arthritis—acute or chronic.
4. Gonorrheal arthritis.

PRODROMATA

The prodromata or early subjective and objective symptoms, although often easily overlooked, should by careful scrutiny, be more recognized in the future. Vague and indefinite pains in the joints especially of the hands, easy fatigability of body and mind, the overweight stocky type of individual leading a sedentary life, the thin, asthenic, ptotic, constipated individual, using to excess the faculties of body and mind, should each be more carefully examined and considered, when they present themselves with such symptoms as above.

In treating these prodromal symptoms, we should correct any dietary insults,

*Paper read before the Garfield County Medical Society, Enid, May 3, 1932.

5. TUBERCULOUS ARTHRITIS

	ATROPHIC ARTHRITIS	HYPERTROPHIC ARTHRITIS	INFECTIOUS ARTHRITIS	GONORRHEAL ARTHRITIS	TUBERCULOSIS ARTHRITIS
Age	Infancy to middle life	Middle life to death	Middle adult life	Adults	Early life
Onset	Acute to insidious	Subacute to ignorance	Acute usually	Acute	Chronic usually
General health	Not robust, fatigue easily	Generally not disturbed	If chr. gen. poor; acute often shows septicemia	Healthy	Asthenic
Body type	Thin, asthenic nervous; poor circulation, malnutrition; slow pulse, no fever, dry skin	Stocky, well built, laborers, those exposed to climate	As above	Varies	Thin
Pain, soreness and tenderness	Present but not so marked as infectious type	Slight. Usually follows slight injury, excessive strain or injury	Present early in disease	Present	Present
Joint swelling and muscle atrophy	Present	Not especially noticeable	Swelling present	Swelling present	Atrophy present
Redness and heat	Usually none	Usually none	Present	Varies	Usually none
Disability	Slow progressive	Present	Present	Present	Present
Deformity	Slow progressive	Present	Follows later	Usually none	Generally later if not treated
Joints affected	Smaller	Spine commonly	Polyarticular	Larger	Hip and spine
Etiology		Endarteritis with trauma predisposing	Foci	G. C.	T. B.
X-ray findings	Early diminished bone density. No lipping. Inc. density soft parts Late narrowed articular space. Anklyosis	Early no diminished bone density unless from disuse. Lipping of margins, no inc. of density of soft parts. Late irregular articular surfaces. No anklyosis	Late generally is some destruction or signs of bon. anklyosis	Early usually none; maybe increase in articular space.	Destruction

graduate and normalize activities by increasing or decreasing work and exercises. Demonstrable foci of infections should be treated and removed when necessary, and all abnormalities of the various systems of the body should be corrected.

DRUGS

Especially during this present age, due to the common methods of advertising and exploitation indulged in by many manufacturers, we often are confronted with conflicting statements and testimonials regarding the value of drugs, not presented to us as such, but as the refined and improved product, generally of a complex organic or bio-chemical nature.

Salicylates, in general are good only in the acute conditions, in chronic cases associated with pain or during the time of acute exacerbations. The most common and probably most desirable form of this drug, is that of the sodium salt. It may be given twenty grains in water every three hours for two weeks after pain has been relieved, or until gastro-intestinal, genito-urinary or auditory arise. Donaldson suggests the following method, in case there is a systemic aversion to the taking of salicylates per os. 50-100 grains of sodium salicylate, added to two ounces of a stock solution of twelve ounces of water, previously boiled with two drams of cornstarch, given twice daily as a retention enema, following the usual cleansing enema. Usually within three to seven days there occurs some deafness and ringing in the ears, when the drug is then given 10 to 15 grains three times daily in the middle of meals. This oral treatment is continued for three months and then on alternate weeks for the following fifteen months, checking urine monthly for signs of renal irritation as shown by the presence of red blood cells. It may also be given intravenously 15 to 30 grains every eight hours, often combined with an equal amount of KI, but it should be remembered that this drug is quite irritating when introduced into the perivascular tissues. Acetylsalicylic acid may be used in like manner and doses, but its lesser solubility decreases its adaptability. Cincophen, farastan and like preparations have no particular advantage over the sodium salt of the salicylates, and some men report un-

toward and serious complications following their ingestion.

Arsenic has been found of distinct value in the hypertrophic type of arthritis. Ely advises the use of neosalvarsan with doses of emetine in this type of disease. It may be given as the solution of potassium arsenite (Fowler's solution), beginning one drop three times daily and increasing one drop each day until a maximum dosage is reached, alternating with a course of iodides, with a short period of rest between each series of doses. Sodium cacodylate three grains and iron cacodylate one grain intravenously are also very acceptable forms of this drug.

Iron generally is found to be a necessary part of the drug regime, due to the secondary anemia present, and naturally is given after acute symptoms have subsided. It may be given as the syrup of ferrous iodide, 20 to 30 drops after meals. Blaud's pills or Basham's mixture.

Glandular extracts are often found of value as thyroid extract combined with ovarian extract for hypertrophic arthritis, menopausal arthritis or that associated with lowered metabolism. We should not over emphasize their importance at any time, and should use only those extracts that have proven to be of distinct merit, guarding against any thyroid intoxication.

Other medicaments used and very often of value, we may consider more briefly, yet by doing so, their place in this regime, is not to be minimized. Cod liver oil, 1 to 2 drams three times daily or viosterol 10 to 15 minims daily, often are helpful adjuncts in our fight to overcome this diseased condition. Mineral oil, petrolagar, agarol, supplemented as necessary by small doses of fluid extract of cascara sagrada, are harmless laxatives. Benzoates in the form of amiodoxyl (Abbot's), 1 gram in 100 cubic centimeters of distilled water intravenously, twice weekly, has found a place with many therapeutists. Iodides given for their alterative action, should be best avoided in the atrophic type, for obvious reasons of a constitutional nature. Alkalis as sodium citrate 15 grains three times daily, may at times be advantageously used. Duke reports good temporary results with the use of adrenalin, in the acute articular rheumatic syndromes, possibly due to some type of allergic reactions within the joints proper. Should a specific etiological factor be shown as syphilis, tuberculosis or pernicious anemia, this should call for special treatment. Calcium intravenously is of value in a tuberculous condition according to most authorities.

VACCINES

Foreign protein therapy is especially good in the hypertrophic and infectious arthropathies and in those where chronicity is marked. They depend upon their favorable action, due to the mobilization of specific and non-specific immune bodies in the system. They should produce a slight systemic reaction, *ie.*, increase of any symptom with chills and fever, and possibly vomiting, for their best results. It may be given as aolan or boiled milk, 5 to 10 cc. intramuscularly every other day —the latter probably giving the better results. Typhoid vaccine 1-10 to ½ minim intravenously and increasing every three days one minim, to a maximum of 1.5 cc. will give much the same result, but caution should be used in their use.

Stock vaccines may be tried when no demonstrable foci are present or when the preparation of autogenous vaccines is impossible. Best results are probably in the atrophic type and should contain at least the streptococci salivarius, fecalis and pyogenes.

Autogenous vaccines are gradually finding an important place in the treatment of arthritis. Many experimenters find that cultures taken from the blood or affected joints, offer the best hope for relief. Certainly, we expect from their use, nonspecific protein reaction and depending upon whether we can find the foci of infection as the causative agent, and subsequently separate and grow the specific strain or organism, be it streptococci or staphylococci, at fault, depends possibly the specific influence to be had upon the disease proper.

Approved and recognized laboratories are necessary when this therapy is to be instituted, and furnish the necessary information to the practitioner desiring it. They are given usually in the same dosage as that of the stock vaccines, starting with one million every three to four days, then every week, increasing each dose by 25 to 50%, in short, whenever possible avoid marked constitutional reaction. These injections should be given from three to four months, and later a second course should be repeated in similar fashion.

PHYSIOTHERAPY

Massage is especially good in the atro-

phic type of arthritis, in order to increase the local blood supply, which is inadequate —in short there is a loss of capillary control, as shown by Pemberton and Pierce. In general, to realize the best clinical results, this should be carried on for at least four to five weeks. Combined with this, voluntary exercise on the part of the patient should be carried out, and should be combined with most of the heat treatments, save in the acute stages.

Radiant heat gives best results when used in well nourished patients, in the hypertrophic or metabolic type. It should not be used immediately after surgical operations or with weight reduction diets.

Diathermy is best used in acute arthritis and fibrositis, rather than in the chronic types. Keyting advises, in general using radiant heat for about thirty minutes, following the use of infra-red, this to be followed by diathermy for 30 to 45 minutes. Some therapeutists report good results when used in early menopausal arthritis.

Ultra violet and infra-red finds an important place, in that they stimulate the defensive mechanisms of the body. If a primary or secondary anemia is present, we can hope for improvement in a general way, as we must at all times keep in min that arthritis must be treated systemically as well as locally, and that rays of sunshine combined with a dry climate cannot be greatly improved upon.

Needle spray, alternating heat and cold increase the blood supply. This may be used in the form of the common shower; should this not be available complete immersions have great beneficial action.

Colonic irrigations are assuming an important and well deserved place in therapeusis. The Schellberg irrigator apparatus is especially good, gradually filling the colon as the tube is advanced until the cecum is reached, allowing the large bowel to alternately fill and empty. Another method is to fill the colon with 1½ pints of saline solution at 102 degrees F. at 12 inch pressure. Allowing about 15 minutes for the bowel to empty, two pints of s like solution is added to the colon at 18 inch pressure. Following this introduce directly into the bowel, acidopholus or Bulgaricus bacilli.

SURGICAL

At all times deformities should be avoided and if they form, should be corrected as soon as possible. If pain demands fixation, this should be used, always placing the affected member in the most comfortable and useful position. Any static deformities present should be corrected, and at times we find the consulation of an orthopedist most helpful. In general deformities are common in the atrophic typ whereas pain in the hypertrophic type often forces on us the use of some type of fixation.

The joint proper, should always be drained if pus collects, as it commonly does in the gonorrheal type of arthritis. We may even find it necessary to open the joint and wash out with large amounts of saline. Smith-Peterson state that synovectomy is often indicated in the chronic infectious arthropathies, especially before there are bone and cartilage changes.

Auto transfusions, using 30 to 40 cc. of blood taken from the cubital veins, and giving intramuscularly, often give marked relief in the poly-arthritic and subacute conditions. Usually 5 to 6 such transfusions suffice; it has been found of little value in the chronic types of arthritis.

The removal of foci is only part of the treatment; important—true, yet not the sum total of available therapeutic agents. Even though we find some teeth extracted, look carefully for others so infected— tonsils may have been removed, yet a few tags of lymphoid tissue present may harbour a virulent type of infection. And in passing remember the gastro-intestinal tract, that men still suffer from prostatitis, and chronic urethritis, that women still have pelvic organs inviting the presence of infection.

DIET

The main requisites of an arthritic diet, according to Snyder are:

1. *Low caloric value.* It is often necessary to watch weight and reaction of patient carefully, adding gradually to give the minimum of discomfort and the maximum permissible energy. We must at times closely approach starvation. This lessens colonic content, consequently number of the bacteria and amount of products of putrefaction generated by action of them in feces is correspondingly lessened. In the atrophic type we increase the diet for obvious reasons.

2. *Low carbohydrate value.* Avoid potatoes, turnips, carrots, rice, beets, parsnips, as system has a physiological dysfunction

in nature of a disturbed rate of carbohydrates removal.

3. *Low protein value.* This form of food should be made up of chiefly milk, eggs, cheese, fish or red meats. Red meats are usually not contra-indicated as the blood urea and non-protein nitrogen usually is found to be normal. We should preserve the minimum protein allowance of .7 to 1 gram per kilo of body weight.

4. *Low purin value.* In short, avoid as much as possible, liver, pancreas, thymus, kidneys, sardines, herring, carp, lentils (peas and beans), squab, brains, and spinach. Cabbage, sprouts, califlower is not contra-indicated.

5. *Adequate vitamin content.* Fruits are especially good, and we should endeavor to increase the vitamin A and vitamin B intake, by the use of eggs, milk, fruits, vegetables, especially lettuce.

6. *Elasticity.* A diet must be readily adaptable to any concurrent pathology, as diabetes, nephritis, etc., that may be present.

7. *Availability.* It should be so advised to the patient, that it will be readily procurable in cafes, trains, homes, etc.

8. *Fluids.* These at all times should be forced.

201-3 Medical Arts Bldg.

RHEUMATICOSIS*

HUGH C. GRAHAM, M.D.
TULSA

Rheumatism today is one of the dreaded diseases of any period of life. It has been very closely associated, especially in the past, with the middle and later periods of life, and, in fact, has been considered almost a heritage of advancing years. Such a view has been properly supplanted by a rational attitude toward the causative factors, especially in recent years. Two schools of thought prevail: one holding that rheumatism and its symptoms, such as aches and pains, joint changes, etc., are due to an allergic[1] sensitization, the result of an infection; the other holding that rheumatic symptoms are the direct result of bacterial activity or their toxins[2]. The study of rheumatism of the preceding several decades has resulted in one great advance: the definite conception that usually the disease has its origin in childhood, and may be definitely implanted even before school age, although positive findings may be entirely lacking or inconclusive[3,4,5].

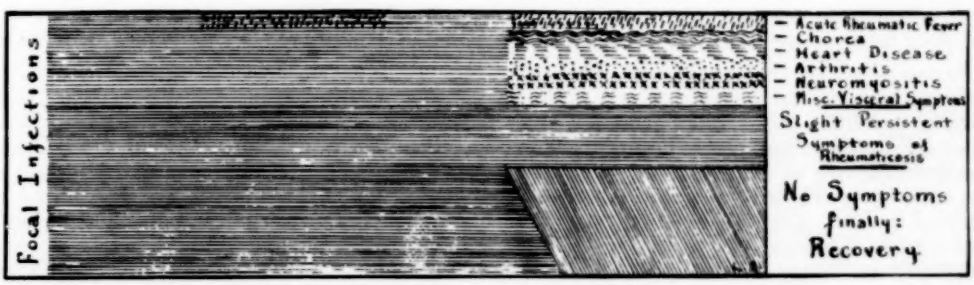
The presence of early rheumatism in childhood is not generally appreciated, except in some quarters[6]. The conception of adult types and symptomatology, which is quite different from that found in the early years of life[7], makes the recognition

*Read before the Oklahoma Pediatric Society, Tulsa, May, 24, 1932.

Chart

Depicting the Usual

Course of the Rheumatic Syndrome.



in childhood difficult[2]. The names applied to the rheumatism of childhood are many, and among them are found juvenile rheumatism, rheumatism of childhood, prerheumatic state, early rheumatic state, rheumatic diathesis, the pre-cardiac, the pre-choreic, potential heart disease, fatigue syndrome, lowered resistance diathesis, growing pains, latent rheumatism, as well as acute rheumatic fever. It is readily observed, first, that there is a play upon terms, there being no generally acceptable term; and, second, that while the manifestations and the course of the disease in childhood differ markedly from those of adult life[1], yet in general the conceptions of the adult types dominate the picture found in childhood[3]. It, therefore, seems quite appropriate to attempt to define the rheumatism of childhood according to the newer conceptions, to indicate some of the symptomatology, and to suggest a new terminology, inasmuch as it is felt that more accurate diagnosis and better results will follow a more definite picture of the disease as a clinical entity of childhood, or as a definite phase of the disease in all periods of life.

By the rheumatism of childhood is understood the clinical syndrome probably caused by a streptococcus or streptococci and their toxins. It is either acute or chronic, but practically always chronic, is frequently characterized by no symptoms at first, and later by indefinite manifestations such as:

1. Mental or nervous symptoms: change in disposition, emotional instability, fidgetyness, inability to fix attention, "nervousness," complexes, social perverseness, mental retardation, and irritability.

2. Muscular or motor mechanism symptoms: aches and pains, "growing pains," especially of the legs, fatigue.

3. Miscellaneous symptoms: poor or fickle appetite, disordered digestion, restless sleep, enuresis, lessened muscular tone and relaxed body posture, failure to gain or poor gain in weight.

Some or all of these symptoms may be present in varying degree. As the affection progresses, they become more pronounced, and the mental or nervous group leads to failure in school, inability to cooperate properly as a social creature, limited mental accomplishments, and may but usually does not lead to chorea. In the muscular or motor mechanism group, the symptoms may progress until the aches and pains, especially after exercise or fatigue, become pronounced and spread to the abdomen, the chest, and the head; while the fatigue may become more and more marked, ultimately resulting in dyspnea, when the myocardium is markedly affected. These cases frequently develop into heart disease and arthritis. In the miscellaneous group of symptoms, the manifestations become more noticeable, laziness and lassitude are fixed upon the personality of the individual, ambition may be noticeable by its absence, and the child will be deprived of many joys in life. As all these symptoms of early rheumatism progress unfavorably, it is seen that the end result is heart disease, or chorea, or arthritis, or other visceral affections, one or all.

Rheumatism of childhood, while it may be characterized by an acute onset, is almost always a chronic, low grade, progressive disease, and is in some respects to be compared to syphilis and tuberculosis as to chronicity and importance[2]. Whenever the disease is recognized following an acute onset, I believe that, if the patient has been sufficiently and carefully followed and studied before the acute onset, it would usually have been found that the affection was already present in low grade form, and the acute onset should be considered only as a flaring up of the smoldering fire[2]. The disease is pernicious in its course and usually does its damage unheralded, being early characterized by indefinite and unassuming manifestations, frequently evaluated as of no importance[2]. The difficulty of recognizing this constitutional and systemic disease, which is nearly always the result of a focus or foci of infection, has forced me to think of the causative factors as acting indolently, inconstantly, but chronically; and this has caused me to adopt a new nomenclature indicating and incorporating the newer conceptions, yet retaining enough of the old to show unmistakably the relationship of this clinical syndrome with rheumatism as a whole. I propose the following classification:

The term rheumaticosis (rheumaticosis) is chosen as the best available word: a combination of rheumatic to express the rheumatic basis and osis to indicate the low grade chronicity feature. By the adoption of this term to designate the symptom complex, attention will be partially and sufficiently diverted from traditional rheumatism, such as lumbago, arthritis,

and neuritis, to allow the newer conceptions of this affection to receive the greater degree of attention which they deserve. While it is true that there is not infrequently some real inflammatory process present in the tissue cells, as is so well known in acute rheumatic fever[8], yet the characteristic is a subacute, indolent, low grade toxicosis that is all-pervading[2,5,10]. The essential lesion[3] apparently is that of a small round cell infiltration about the minute blood vessels, especially of the nervous, muscular, and osseous systems. The apparent visceral damage thus done in any tissue is very slight as compared with the usual symptoms.

For the muscular and bony systems, the terms myososis to replace myositis and osteosis instead of osteitis are proposed.

Hyman and Parsonnet[11] have recently proposed the use of the term myocardosis to replace chronic myocarditis. This term is especially applicable to the chronic low grade affection in rheumaticosis, and I believe the term should be generally adopted. Inasmuch as so many acquired myocardial affections, in fact, practically all such in childhood, are of rheumatic origin, myocardosis might be considered as of especial significance in rheumaticosis. Indeed, it is not at all unlikely that long before definite myocardial disturbances can be found to be present as such, the low grade toxicosis in childhood has affected to no little extent the cardiac tissues[12].

Long before definite chorea has developed, the ground has been fertilized, the neurone is slowly, surely, insidiously being poisoned; and the symptoms may change from the mild to those of fully developed chorea. In order better to designate the prechoreic state, the term neuronosis is proposed. Recent pathologic investigations[2] seem to show that the involvement may be dilated blood vessels of the brain, proliferation of the lining of capillaries, a subacute encephalomeningitis; and one fatal case showed a definite meningo-encephalitis. Inasmuch as practically all cases of chorea pass thru a long period of development in which the nerve cells or neurones are bathed by the rheumatic toxins, the term neuronosis indicates quite correctly the underlying conditions.

Poynton[2] classified according to damage done 1108 cases under his personal observation who were passing through or had already passed through the stage of rheumaticosis and in which definite lesions or organs could be accurately found, and he listed:

Carditis in 673.
Arthritis in 626.
Chorea in 617.
Sore throat and tonsillitis in 344.
Nodules in 94.

When we realize that, according to St. Lawrence[4] and McCulloch[3], most heart disease may be prevented by proper medical care, especially in the myososis and osteosis groups, we have as weapons for its prevention the early diagnosis and proper care. Thomson[6] states that in England 30,000 persons die annually as a result of rheumatism, and this figure compares favorably with those for tuberculosis and cancer. In addition, when we add to that toll the great amount of untold suffering, chronic invalidism, as well as all the disturbing minor symptoms, we may realize the enormity of the problem.

While it is true that rheumatism as a whole is not receiving enough attention, it is quite true that rheumaticosis is receiving only a very small percent of this attention. Inasmuch as it is through the portals of rheumaticosis that practically all the candidates for chorea, heart disease, and arthritis must pass, lingering, for quite a period, our best weapon to reduce this mighty toll upon society is to recognize the first stage. It is my belief that such terminology as is here suggested will serve to focus more attention upon the early period of the disease.

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ITS QUICK ACTION PREVENTS DEFORMITIES

No antiricketic substance will straighten bones that have become misshapen as the result of rickets. But Mead's Viosterol in Oil 250 D can be depended upon to prevent ricketic deformities. This is not true of all antiricketic agents, many of which are so limited by tolerance or bulk that they cannot be given in quantities sufficient to arrest the ricketic process promptly, with the result that the bones are not adequately calcified to bear weight or muscle-pull and hence become deformed.

THE HEALTH DEPARTMENT AND THE PHYSICIAN IN PRIVATE PRACTICE

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Reluctant as he may be to realize and admit it, one who comes frequently in contact with large numbers of practicing physicians and with representatives of local public health agencies cannot fail to see developing in many sections of the country today a more or less strained relationship between the health department and the doctor engaged in private practice. On the one hand, the physician sees, in all sincerity, the present-day activities of the health agency as the forerunner of what he visualizes as "State medicine" of the future; on the other side, this or that health officer complains of the lack of cooperation—even open hostility—of the medical profession. This situation seems all the more deplorable because of the very evident fact that most of the dissatisfaction which has arisen can be attributed to misunderstanding; and the writer of this paper cannot be honest without expressing his belief that responsibility for much of this misunderstanding, wherever it exists, can be laid at the door of the health officer himself as a result of his failure to take the local medical profession into his confidence and to request its advice and assistance in the planning and in the execution of his work. Although I myself am the representative of a public health agency, many years removed from association with members of my profession as a practicing physician, I have sufficent faith in the altruism of the doctor in private practice, demonstrated by his traditional willingness to carry, often at sacrifice of himself, more than his part of a community burden by giving without recompense his services to the unfortunate, to know that at heart he is just as much interested in the prevention of unnecesary illness and mortality as is the health officer. And experience in local health work has convinced me of the belief that whenever the health department is willing to take its problems openly to the medical profession for free discussion and to seek the cooperation of the practicing physician on an amicable basis, the whole-hearted and enthusiastic support of the doctors usually will be forthcoming.

On the other hand there is a wealth of good in the modern public health program which may result in material personal benefit to the private physician if he will forget for the moment his fear of "State medicine" and take the trouble to see for himself what the health department may do for him. I refer particularly to the demand for medical service created by school medical inspections, periodic physical examinations, diagnostic clinics, educational activities, and the like. Moreover, it is my firm conviction that the public health agency can and will be the strongest ally of the medical profession in resisting the approach of "State medicine" if you will permit the health officer to join with you in an effort to solve the problem you are now facing or with which you undoubtedly will be confronted in the future. Any trend which may be developing in this country toward "State medicine" is the result of an underlying cause far more important than the activities of the health agency. The economic situation with which the doctor is confronted is affecting the public as well. People are beginning to wonder if the burden of medical care for certain groups, which falls ultimately upon the community as a whole, cannot be made lighter by preventing the need for such care. The individual who is not an indigent but who cannot pay the price of adequate service finds himself forced to go without or to seek some plan whereby the expense of medical attention may be lessened. In all seriousness, therefore, I venture to predict that should there develop in this country a conflict over the question of whether or not medical service shall be supplied by the State or the community, the controversy will be waged not between the health department and the physician but between the public and the medical profession. Why should not the public health agency and the practicing physician, before the situation becomes more difficult, join hands in working out a solution of the problem which will meet public health needs, give the doctor an opportunity to adjust himself to preventive medicine in private practice, and provide a plan under which every individual may receive adequate medical advice and care at a cost commensurate with his ability to pay, with just compensation to the physician for his services? The health department, by virtue of its experience in dealing with problems on a community-wide scale should be particularly helpful in assisting the city or coun-

ty medical society with the development of a plan for medical service for the poor and for those who cannot afford the usual cost of medical care. On the other hand, the private physician can give material assistance to the health officer, while helping himself, by taking advantage of the ever-increasing opportunities to practice preventive medicine in the home.

In an effort to clear up some of the misunderstandings which are preventing, in certain localities, whole-hearted cooperation between the health department and the physician, I shall touch briefly on a few topics that have been particularly prominent of late as causes for difference of opinion. One point on which there has been much discussion is the question as to whether the health department should engage in general immunization activities. There has been a feeling in many localities that such work carried on by a public agency is an encroachment upon the field of the practicing physician which borders on "State medicine." In considering this question we must bear in mind that in dealing with certain communicable diseases our only means of preventing the spread of infection lies in immunizing the susceptible population. Under present-day conditions of living, attempts to control these diseases by preventing contact—by isolation and quarantine—are generally acknowledged to be for the most part futile. It is also recognized that control cannot be established unless a certain percentage of the most susceptible population group be protected. Regardless of how it may be done, therefore, it is evident that there is a job which must be done; and I believe the medical profession is just as much interested in seeing that it is done as is the health department. How the problem shall be met is a matter that must be determined in each individual community. Whatever the plan adopted may be, it should be worked out jointly between the health officer and the local medical society and have the approval of both. If the private physician will do his part by assuming responsibility for the immunization of members of families in his practice and will make reports to the health department of all individuals immunized by him, I can see no reason why the health department should not be agreeable to leaving all of this work possible to the doctor in private practice. The health department should make sure, however, that the local medical profession is fully acquainted with the extent and character of the work to be done, before it permits responsibility for performance to be assumed by the physicians; and it must have assurance that such performance will be complete. The local medical profession must be willing to do something more than the immunizing of only such individuals as may seek the physician's services. If the responsibility is not to be left with the health department, it should be assumed entirely and faithfully discharged by the doctors in private practice.

The writer frequently has heard criticism of the activities of the public health nurse, particularly in respect of her work in connection with pre-natal cases. The nurse who has had proper training and who is under adequate supervision should never have occasion to overstep the bounds of propriety in her official relationship with the clientele of the private physician. Her chief function lies in bringing the patient who needs attention under the care of the doctor. It has always been my opinion that public health nursing work can be carried on most successfully and with the minimum of misunderstanding and complaint when the nursing service is operated as a part of a general health program, under the direction of a full-time medical health officer, and not as a separate or special community activity. The health officer, being a physician himself, can, if his relationship with the local medical profession is what it should be, coordinate the work of the public health nurse with that of the private physician in such manner that she not only will not go out of her proper field but will render material assistance to the doctor in many ways.

I have just touched upon a matter which I consider vital to the successful maintenance of a proper relationship between the health department and the medical profession in any community. I believe such relationship can be preserved best when the health officer devotes his entire time to the work of the health department and is not in competition with other physicians in private practice. He should be highly trained in the specialties of environmental sanitation and epidemiology and should be sufficiently outstanding in his knowledge of the diagnosing and control of communicable diseases to make him available as a consultant when his assistance is required by the private physician.

I have saved for the last the topic I be-

lieve to be most important of all—medical care. The time probably will come soon when we shall have progressed as far as we may go in the prevention of diseases which will yield to environmental sanitation and to control by immunization. The next important development in public health and preventive medicine must be the reduction of illness and mortality from that large and important group in human afflictions which includes heart disease, cancer, the pneumonias, diseases of pregnancy and childbirth, certain causes of infant mortality, and the like. This means that every individual must have adequate medical service and that the public must be taught the importance of seeking medical advice at the time when it can be of greatest value—before illness has progressed to the point where little or nothing can be done about it. The periodic physical examination will be the answer in part to this problem.

I do not believe the health department itself should enter the field of curative medicine, except when it may be necessary under certain special conditions to maintain clinics for the treatment of indigent persons for communicable diseases where the only means of preventing the spread of infection is removing the source by treatment of the case. It may also be desirable, especially in urban communities, that the health department maintain certain diagnostic clinics as a means of case finding and interesting and educating the public; where such clinics are maintained, however, it goes without saying that their activities should not extend into the field of treatment. But the chief function of the health department will be the conducting of the intensive and continuous campaign necessary to popularize medical advice and bring the individual who needs medical attention under the early care of the doctor. It will also be the responsibility of the health department to develop in the public mind an appreciation of the value of the periodic physical examination even though such examination from year to year may show no condition calling for medical attention. Then the physician must do his part. He must cooperate with the health department by helping to devise some satisfactory plan whereby every individual may receive adequate medical care. And when the health department has convinced the public of the value of the periodic health examination the doctor should not, as it sometimes happens, say "Oh, you don't need an examination; there is nothing wrong with you." He should do his best to see that a good job is done and to convince the patient that the periodic examination is a good thing even though nothing may be wrong at the time.

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DRUG ADDICTION AND MEASURES FOR ITS PREVENTION IN UNITED STATES

Waler L. Treadway, Washington, D. C. (Journal A. M. A., July 30, 1932), deals briefly with an epidemiologic approach to the drug addiction situation in the United States. He points out that it is a medicosocial problem of interest and concern to local, state and national jurisdictions, organizations and associations; that a public policy which treats drug addiction solely as a penal and correctional problem is not contributing to its solution; that immediate and remote causes of drug addiction bear a relation to the measures adopted for its prevention in the past, the present and those pending and contemplated; that measures for prevention demand the full cooperation and counsel of organized agencies representing the professional groups concerned, with law enforcement agencies having responsibilities in the matter; that prevention and treatment necessitate an appreciation of the psychobiologic, chemicobiologic and pharmacobiologic factors involved, and that fundamental research is essential for the establishment of more accurate knowledge concerning the chemistry of alkaloids, of more reliable information respecting their biologic affects in lower animals and in man, and of a more satisfactory evaluation of the many psychobiologic factors intergrading delinquency. Basic facts on these subjects may not be established this year or the next, but systematic and scientific studies by technically trained groups of workers should pave the way to a better understanding of this and related problems. Whereas recent legislation requires that the solution of the narcotic drug addiction problem shall be largely a federal activity embracing administrative, investigative and research functions, nevertheless its medicosocial and biologic significance becomes more crystallized when these functions are imposed on the medical profession. It may be significant, therefore, that the United States Public Health Service has been designated ex officio, unsought as it were, the coordinator for carrying out those research functions relating to the eventual solution of the problem. In concluding this discussion of drug addiction and measures for its prevention in the United States, the author calls attention to some experiences of the past. These teach one that depraved men and women are eager and ready to raid those supplies destined for medical and scientific uses when contraband narcotic drugs are not available or are unusually difficult to procure. They will seek every means to divert such supplies from legitimate channels. The adoption of a public policy of segregating, isolating and treating drug addicts as a means of solving this potential menace to the legal supply of dangerous habit-forming narcotic drugs should serve to safeguard the interests of those professional and business groups who are custodians of these drugs.

OCCIPITO-POSTERIOR POSITION

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In view of the fact that most of the points I want to bring out in connection with this subject can be better emphasized by illustration, I have taken the liberty of bringing a pelvis and mannikin doll along, and I am going to talk rather than read a paper.

Occipito-posterior position is an important subject for several reasons. In the first place, it is probably the most common pathological condition in labor that we encounter. In the second place, it is frequently not diagnosed early and consequently poorly managed, resulting in considerable maternal morbidity and causing many injuries to the fetus. In speaking of occipito-posterior position, of course, I mean those cases were the baby's occiput is pointing toward one or the other sacro-iliac joints. I am going to omit the etiology and start with the diagnosis.

Diagnosis: Up to the time that labor is well established, we get the most valuable information by making a very careful abdominal examination. You generally get a long, flat abdomen. The baby's back is generally palpable in one or the other flank and you can feel the small parts toward the front of the abdomen. The fetal heart is generally heard most pronounced in the flank. However, we must remember that where you have extension of the head, the baby's chest is quite often displaced toward the opposite anterior part of the abdomen, not infrequently transmitting the heart very audibly to that side. Another important point of the abdominal examination is the ability to palpate the frontal eminence above the pubis and toward the opposite side from the occiput. For instance, if you have a right occipito-posterior, (which is the more frequent position) you generally feel the baby's left frontal eminence to the left and above the symphysis. Your vaginal or rectal examination will not help a great deal in diagnosis until the patient is two or three fingers dilated. When that stage is reached you can generally confirm your abdominal findings by locating the fontanelles, or if necessary, by feeling the fetal ear. An important point in making your rectal or vaginal examination is the location of the cervix. A cervix which is pulled posteriorly, generally indicates an occipito-posterior position.

Mechanism: A few words about the mechanism in these cases. We all know that the complication of this position which accounts for most of the trouble is an extension of the baby's head. The head, instead of being flexed on the chest, is extended in military fashion. Several conditions account for this extension: (1) The baby's back is straightened out, since it lies against the more or less straightened posterior wall of the uterus, thus causing some extension of the baby's head. (2) Where there is any degree of disproportion the parietal eminences may become impinged on the posterior rim of the pelvis, causing increase in flexion. As a result of this increase in flexion, we frequently get early rupture of the membranes. (However, if we have good flexion the membranes will probably remain intact and the head will enter the pelvis without difficulty). Therefore, these labors are inclined to be prolonged with irregular pains. The occiput must rotate from a sacro-iliac position around to an anterior position. This usually necessitates good strong pains. A good pelvic floor is helpful, since rotation does not usually occur until the head strikes the pelvic floor. Our anatomists teach us that the pelvic floor runs downward, forward and inward, which forms more or less of a gutter and aids rotation.

Treatment: About the treatment of these positions, there is some question as to whether or not you can do anything by prophylactic measures. I believe in a few of the cases you can. Where the head is unengaged, having the patient lie on the opposite side from that on which the baby's back lies may aid nature in gravitating the baby's body to an anterior position. I believe that many of these cases can be corrected by this simple procedure. However, where the head is firmly engaged, it is my opinion that little can be done by prophylactic measures. In the early stages of labor, we can conserve the patient's strength by nourishment and prevent exhaustion by morphine, magnesium sulphate, and quinetherol. If there is any place in obstetrics where ether by rectum assumes its maximum amount of good, it is in these occipito-posterior positions. These patients should be kept in bed during active labor to prevent, if possible, an early rupture of the membranes.

Before discussing the management of the second stag of labor, let me say that in 70 to 80% of these cases, the occiput will

rotate spontaneously and labor will terminate normally. The treatment of these cases, of course, is watchful waiting, carefully observing the condition of the mother and the fetal heart. However, in a certain percentage, probably 15 to 20%, the rotation will not be spontaneous and will require some assistance from the doctor. It is these cases that I am speaking about today. So, after the cervix becomes completely dilated, and the patient has possibly been in the second stage two or three hours with very little or no progress, the mother becoming exhausted and the fetal heart undergoing changes, and we feel that some assistance should be rendered her, what are we to do? Your procedure should depend chiefly upon the station of the fetal head. In those cases, where the head is high and there is definite disproportion between the head and the pelvis, you must consider caesarean, especially if the membranes have been ruptured only a short time, and she has had practically no chance of becoming infected. Where the head is dipping in the pelvis, but still high with no definite disproportion, version is probably the method of choice. Fortunately, these cases where the head remains high are few. The majority of cases that need intervention are those where the head is in mid or low pelvis and unable to rotate spontaneously. In these cases, rotation and forceps delivery is the method to be carried out. If we can rotate these heads manually, it is always best. You simply grasp the baby's head, by the hand inserted in the vagina, and rotate it to an anterior position. In right occiput-posterior, you insert the left hand and use your right hand in left occiput-posterior. After correction, the hand is not removed until the first blade of the forceps is applied. The majority of these cases that need external aid can be rotated in this manner, however, occasionally we find one which will require rotation with forceps.

In these cases, the Scanzoni maneuver (double application of forceps) is used. This procedure has been condemned by many men and in unskilled hands may cause considerable injury. But generally in the hands of those accustomed to it, its results are brilliant and damage is negligible. Dr. Bill, of Cleveland, has laid down a few precautions which should be observed in executing this maneuver. He emphasizes the fact that the head should be rotated in the plane in which it lies, and that no traction should be exerted at the time of rotation. Also the handles of the forceps should describe a wide circle during rotation. In this maneuver, of course, the forceps are applied with a cephalic application, therefore, after complete rotation the blades are, so to speak, up-side-down. They are then removed and re-applied as in an application for an anterior position. Other forceps used sometimes for this condition are the Kielland and the Barton. Both instruments are of interest only to the obstetrical specialist, and I will not take time to discuss their application or merits.

Before closing, I want to discuss briefly the transverse arrest. This is a condition familiar to us all and occurs most often in the funnel type of pelvis. The occiput makes an effort to rotate but becomes arrested with the sagittal suture running transversely. In these cases, where manual rotation is unsuccessful, a cephalic application should be used and the head gently rotated to an anterior position. In a few of these persistent posterior cases, the occiput, instead of rotation anteriorly, will rotate into the hollow of the sacrum. When artificial help is indicated, I believe it is better to lift these cases out with the forceps, with the occiput remaining posterior. Episiotomy is helpful in these conditions.

In conclusion, I just wish to stress the thought that the proper management of these cases depends upon: (1) Careful study and individualization of each case. (2) An early and accurate disgonsis. (3) Good judgment as to when to render artificial aid. (4) The course and skill to execute that aid when indicated.

Thorough familiarity of this common anomaly will do much toward elevating the plane of obstetrics into a more scientific art and will undoubtedly materially lessen untold suffering, fetal mortality, and maternal morbidity.

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DISCUSSION: *Dr. M. B. Glismann*, Okmulgee.

Dr. Lowry has made a most excellent presentation of this subject. Many will say that if you put your hand in to rotate you are just as liable to make it worse as

you are to improve the condition, that you are liable to get the head out of place worse than before you put your hand in. Dr. Lowry says he does a great many things; he may put his hand in and hold that head in place and while that hand is holding the head in place, then he takes the other hand and puts on the forceps. He can probably do that. Men who practiced in the days of yore can tell you that cases of transverse arrest or where the head rotated into the hollow of the sacrum, these were looked upon as lamentable conditions, and they looked upon it seriously. I would like to ask some of you grey-headed obstetricians, in the twenty-five hundred or three thousand cases you have probably delivered, how many times in this condition have you gotten in serious trouble. During the forty years you have been practicing, have you experienced serious trouble? Is this a common condition, I take the position it is not. I take the position that many of these cases—and he says seventy-five percent—probably in more than that the rotation is spontaneous and terminates normally. Each one of these cases has to be treated individually. I would say as far as position is concerned, to lay the woman on the side opposite to which the occiput points, I believe there is a great deal of bunkum connected with this. I do not believe there would be much mechanism in favor of what we are trying to do. We have all these ideas and conceptions of this position and we don't look upon it as seriously as of yore. We have seen too many heads come through in many different positions. Of course we know this is an abnormal condition. This is pathology. If the three biological stages, the first stage of labor, the second stage of labor, and the third stage of labor, if these always worked harmoniously no woman or child would ever die. We wouldn't have any mortality of either mother or child. We would be in fine condition. This mechanism of labor does work harmoniously many, many times. The doctor only needs to interfere, as Dr. Lowry interferes, when he has to interfere. Why, then, does the mother or child ever die? If this mechanism works right, if the biological mechanism is perfect in its action, absolutely perfect, we say that labor is physiological. Christian Science people are wont to say that all cases are physiological, but we know that is not true. But in cases where it failed, why did that mother die or why did that child die? There are three causes; purely obstetrical causes which are many, pre-existing diseases in the mother, which are many—many women marry and try to have babies that should not try—and accidents. Now, these things occur and this is common of those conditions that become pathological on account of a purely obstetrical condition. It is a purely obstetrical condition that makes this pathology and we have to handle this pathological condition in the best way possible. Forceps should be applied but they should be sparingly used. If not sparingly used you bring that occiput down and make your case worse. Every case is an individual case and you have got to start slowly. We find them in all stages. As Dr. Lowry said, we can generally have very strong indications that we have occiput-posterior by manual examination, not by the examination, we make in the vagina, but by the abdominal examination we make. The biological change of three labors works perfectly anyway ten or fifteen times in a hundred. These cases are all physiological. Nature, way back yonder, knew that there would be purely obstetrical causes, it knew that there would be pre-existing disease in the mother, and knew that accidents would occur that could be avoided by reason or our certain way and certain machanism of labor. We have a care-chain composed of three links—pre-labor care, natal care, and post-natal care. Dr. Lowry tells of his care in the first stage of labor or the second stage, or the third stage, and he carefully examines that patient and carefully does what is necessary. That is why our mortality is not going to be great. The old grey-headed man has found that if he had a hundred of these cases, in less than one-fourth of them has he needed to interfere. When we have to deliver by forceps with the head in posterior-occiput it seems cruel not to make a large episiotomy. We ought to make it long enough for the head to come through. I suppose all grey-headed men in their experience have been mortified at times by not making that free incision to make plenty of room for the head to come through.

Dr. J. A. Hatchett, Oklahoma City.

There is no set rule for handling these cases. Every case is an individual case.

Dr. R. B. Gibson, Ponca City.

The knowledge of the mechanism of labor that Dr. Lowry exhibited here shows that he is not going to have much trouble with his occiput-posteriors. That is the secret in handling these cases; you have

to have your knowledge of the mechanism of labor down to a fine point, then you will be able to individualize your case, and as Dr. Hatchett has brought out, there is no set rule. Anybody who always uses a certain method or who always does a version is going to have a good percentage of failure. In the prevention of these cases, however, I don't think we will accomplish so very much in trying to prevent those by having the patient lie upon one side or the other. They don't pay much attention to what we say. By instructing them to have a bed pillow, having a pillow under the side, the flexion will draw that baby's back toward the front oftener than any other case. As to what procedure to use, when the membranes are not ruptured and you haven't a contraction ring, I prefer to use version. If you have a contracting ring around the head and the membrane has been ruptured and the waters escaped, you cannot accomplish a version as successfully, however, that all depends on your experience in doing the version. I suppose we will always have trouble with our occipito-posteriors, but the sooner we do come to the point of individualizing them and not depending upon any one particular method of treatment, the sooner we will have less trouble. *Dr. E. P. Allen,* Oklahoma City.

As a rule occiput-posterior occurs in patients who have an abnormal pelvis to start with. Dr. Dickson gave us some very good instances of abnormalities in obstetrics, and that is what we get in a lot of these cases; their pelvis is just not exactly normal. We have no further time to go into that. There are two indications for forceps—first the mother and second, the child. Take a mother unable from exhaustion or disease or any other cause, and where the child is concerned, if the head has been there so long your heart is all wrong, if you don't deliver it you are going to lose your baby. Some points to remember in forceps delivery are those, completely dilated cervix; the bag of waters must be ruptured; head in mid-pelvis or lower; there must not be too much disproportion. If your disproportion is too great you lose your patient. You must diagnose your pelvis. If your pelvic inclination is wrong and the baby tries to come down in the wrong incline it will be difficult to handle. The thing we must start to do is to diagnose the abnormal inclination of the pelvis and diagnose disproportion, and then we will know better how to handle the case. We will know what ought to be done and know where forceps can be used. This can be determined by X-ray and study of the pelvis.

Dr. Lowry: I enjoyed the discussion very much. I have nothing further to add.

PROLAPSE OF RECTUM

Edward G. Martin, Detroit (Journal A. M. A., July 30, 1932), presents the following classification of prolapse of the rectum which was determined by the extent or degree of the prolapse and the sequence of its development: First degree: internal or "concealed" prolapse; invagination of (sigmoid) pelvic colon into rectum; ptoses of pelvic colon. Second degree: rectum is protruded through anus. (A perianal sulcus is present; the anus is not involved). Third degree: prolapsed colon, rectum and anus (no perianal sulcus present). Complete anorectal prolapse. Procidentia. Partial or mucous prolapse. (Commonly seen in childhood). In the operative treatment the pelvic colon is pulled up until the rectum is taut and is fixed there; this cures the prolapse. Occasionally some supplemental repair may be desirable. The author describes the technic of colon fixation thus: A left rectus incision extending from the pubes to the umbilicus is made with a high Trendelenburg position. Assisted by a self-retaining retractor, the small bowel is packed off, exposing the colon, which is pulled up taut and quickly tied in position to determine the exact and relative location of the proposed fixation. The general location of the left ureter, mesial to the psoas major, should be borne in mind. The psoas minor, which is a tensor of the iliacus fascia and has some mobility, makes an excellent location for the fixation, the tendinous portion being used. The iliacus fascia is more commonly used with no particular advantage other than it is always present and accessible. A 3 or 4 inch incision is made through the retroperitoneum and areolar tissue over the site chosen for fixation, the tendon or fascia being exposed. A number 1 chromicized gut suture is first placed through the longitudinal band of the colon, a little below a point where it is then to be inserted into the psoas minor or the fascia of the iliacus, and left untied. Four or five sutures are then placed about one-half inch apart in relative positions. When the first or lower suture is tied it pulls the colon up and in approximation to the exposed fasica; the other sutures are then tied successively. The lateral or outer edge of the peritoneum is sutured lightly over this fixation area to the colon, a fine needle with fine plain catgut being used, thereby covering all raw areas. It has been found unnecessary to suture the mesial edge of the peritoneum to the intestine since it is an apposition to it after the fixation sutures are tied. It has also been found unnecessary to denude the colon at the area to be fixed. The usual abdominal closure completes the operation, and routine postoperative-care is given with the patient in bed for at least ten days. A daily saline enema with evacuation in the recumbent posture is suggested for thirty days.

AGRANULOCYTIC ANGINA WITH REPORT OF FIVE CASES

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The disease which Schultz[1] of Germany first called to our attention in 1922, by a report of several cases and which has been usually referred to as agranulocytic angina should more properly be named granulocytopenia according to Kracke[2] because it "is expressive of the true essential pathology, since it actually designates a decreased number of granular cells, whereas the term agranulocytosis refers to an increased number of cells without granules." Many of these cases occur without the sore throat or angina so this term does not always describe the condition so should be discontinued. "Idiopathic neutropenia" and "malignant neutropenia" are other terms that have been proposed for this disease.

Kracke is also of the opinion that prior to Schultz's description of this condition, "it was rare, for had it existed in large numbers many years ago, it would surely have been described, because of the ease of diagnosis, definite clinical picture and its dramatic and fatal course." He further states that nearly 500 cases have been reported. Yet Skiles[3] in the Journal of American Medical Association in 1925 says in an article on this subject, that a case reported by Lovett[4] in the same journal in 1924, "as far as is known is the first case reported in America." So you see we were either overlooking many of these cases or they were not here in the numbers we now see them. The fact that this condition was described and given a name has also probably caused cases to be reported which otherwise might have been considered just an unusual case.

The onset of the disease as observed in the cases to be reported was usually sudden, with chills and fever. Sore throat was present in every case and in four of the five patients it was the chief complaint. Ulcers were present on the tonsils, pharynx, tongue and gums in practically all of these patients. Marked prostration and weakness was also noted. The white blood count was greatly reduced with the granular cells being almost if not completely absent. Four of the five patients were females who according to the literature are more susceptible than males to this disease. Three of the five patients showed a marked anemia. Two of the patients had prolonged menstrual bleeding and one had severe nasal hemorrhage. None of these patients had been in good health previous to the sudden onset of this condition, a fact which has been observed in many of the cases reported by others.

Smears from the throat and gums showed the different organisms usually found in these locations—namely streptococcus, staphylococcus, pneumonia and Vincent's organisms. One blood culture showed large gram positive bacilli possibly due to contamination, the other cultures all remained sterile.

As to treatment used in our cases, all of the patients received transfusions of citrated blood, several patients receiving repeated transfusions. Mercurochrome was given intravenously to one patient and another patient received repeated roentgen ray treatments over the long bones. None of the treatments seemed to affect the progress of the disease. All of these five patients died, death occurring in from two to twenty-eight days after the onset.

The diagnosis of this condition of course can only be definitely made after a study of the blood but with the symptoms complex of the typical case—sudden onset with chill, fever, sore throat, ulcerations of the mouth and throat and usually marked weakness, one should at least suspect this disease. In the atypical cases without the angina one might more easily overlook the condition but with patients as sick as these patients are a complete blood study is something that should surely be done.

Aplastic anemia is one disease that might be difficult at times to differentiate although in this condition there is an aplasia of the bone marrow as a whole: while in agranulocytic angina only the white cell forming elements are affected except in the terminal stage when both the red cells and the platelets are usually reduced.

The treatment most commonly used in cases reported in the literature has been blood transfusions. Friedman[5] of Germany reported a number of recoveries after using roentgen ray treatment over the long bones; foreign proteins have also been used in an effort to increase the white cells. Some of the patients apparently make a spontaneous recovery. That the treatment is far from satisfactory is evidenced by the high mortality rate which

Dameshek and Ingall[6] estimate at least 90% in the reported cases.

Henry Jackson, Jr.[7] and his co-workers of Boston have apparently given us something of great value in the treatment of this disease in pentose nucleotide. Jackson demonstrated for the first time the existence of this substance in the normal human blood in 1924. "It exists principally in the nuclei of the living cells." They have used it intravenously in twenty cases with fourteen recoveries. They state that "the evidence for the effectiveness of the nucleotide in conditions of acute or subacute leukopenia rests in the uniform, prompt reaction on the part of the blood, the uniform and prompt fall of temperature and the consistent healing of mucous membrane ulcerations."

The etiology of this disease is not known but according to Kracke, "some type of toxic agent attacks the myeloblastic tissue of the bone marrow, this in turn decreasing the output of granulocytes, resulting in loss of the resistance conferred by these cells, and in terminal infection of varying severity." "Kracke and Roberts carried out daily blood counts on a patient for seventy days who had had two previous attacks and demonstrated changes in the blood stream four days before the clinical onset. The day preceding the attack the white blood count was 900 with no neutrophiles though the patient felt quite well. The next day the attack came and she died two days later." Kracke says he thinks it may be safely assumed that the disease is primary in the blood-forming tissues of the bone marrow and that infection is a subsequent but not a necessary part of the picture.

Certain poisons such as arsenic, benzol and thorium may produce a blood picture similar to that seen in these agranulocytic angina cases.

CASE REPORTS

Case No. 1. Z. A., a 16 year old white girl, entered the University Hospital on July 8, 1929, on the nose and throat service. The admitting history and examination are as follows:

Chief complaint: Sore throat, one week's duration. The patient had a high temperature and appeared to be very sick.

Physical examination: Limited to the throat because patient was too ill for further examination. The right tonsil was enlarged and reddened with pus exuding from it. The left tonsil was enlarged but did not appear inflamed.

Impression: Peri-tonsillar abscess, right.

The complete history obtained later is as follows: On June 30, 1929, (nine days before admission to the hospital) patient suddenly became sick with fever and chills. The throat was sore and swollen, the pain being worse on the right side. She spat up blood at this time. One week before she had also spat up blood. She continued to have fever since June 30th. She had cramping spells when the hands, arms and feet would draw up in flexion. For the past three days she had been vomiting, at times, projectile. On July the 6th, the abscess ruptured and pus ran out of her mouth and nose and she felt better for a short time. One doctor who saw her said it was diphtheria and gave her antitoxin. This patient died sixteen days after entering the hospital.

While in he hospital patient's right tonsil remained ulcerated with ulcers also developing on the uvula and mucous membrane of the cheeks. The lips were dry and swollen. She had slight uterine bleeding during most of her illness. Petechial hemorrhages into the skin occurred practically over the whole body, some of these hemorrhagic areas being elevated.

The red blood count ranged from 2,650,000 down to 1,090,000 and the white blood count 4,100 with 44% neutrophiles, 40% L. L., and 6% S. L., myelocytes 6%, transitionals 4% down to 700 white blood count with neutrophiles 8 and S. L. 92.

On about the seventh day in the hospital the red blood count and the white blood count reached their highest count, and at the same time the temperature dropped to normal for the first time. She had this normal temperature for two days when the temperature again reached 104 and 105 where it was during most of her illness and when the temperature became elevated it was noted that the red blood count and white blood count was again low.

This patient was given four transfusions of citrated blood, and one injection of 15 c.c. of 1% solution of mercurochrome intravenously. Repeated blood cultures were negative. Smear from the throat showed gram negative diplococci predominating.

The post-mortem by Dr. Hugh Jeter showed the following: Gastro-intestinal tract grossly negative except that here was scattered petechiae in the mesentery and black pigment which is evidence of old hemorrage scattered throughout. There was only one kidney which was horseshoe shaped. There was two ureters which appeared to enter the bladder in an equal manner. The lymph glands and spleen showed congestion. The bone marrow showed an absence of myelocytes and polymorphonuclear type cells.

Dr. Jeter's conclusions were that both gross and miscrscopic examination of tissues indicate an acute toxic condition involving the spleen, lymph glands and bone marrow to a considerable degree, such as might be the result of any severe grade of toxemia.

The pathology is in keeping with the description of the cases reported of agranulocytic angina.

Case No. 2. White boy, age 13 years, admitted to orthopedic service at the Children's Hospital on July 19, 1930. Patient became sick in December, 1927, with pain in the right hip, radiating to the right knee, accompanied by limping: tubercu-

losis of sacro-iliac joint. X-ray evidence of bone production and destruction in the right acetabulum, no definite X-ray diagnosis.

On July 21, 1930, the patient developed pain in the second and third toes of the right foot and second and fifth toes of the left foot which showed marked inflammation and tenderness. Patient stated he had never had a similar attack before this but had had pain in the calves of the legs and in the wrists. White blood count on this date was 8,400 with 74% N. On August 30, 1930, the notes stated that the temperaure had been normal for the past four days. Patient seemed greatly improved. Did not complain of much pain, wrists and ankles still swollen.

On August 6th, patient was seen by Dr. Geo. Garrison of the pediatric department in consultation because of redness, swelling and tenderness, and pain of several toes, the left wrist and hand. Condition at this time thought to be acute multiple arthritis, apparently of unknown etiology.

Treatment suggested: Immobilization of the wrist with heat locally, salicylates, urinalysis and white blood count ordered. The white blood count was 14,700 with 76% N.

Patient seen again on September 22nd by the pediatric department in consulation because of painful joints of the feet. At this time there was marked enlargement of the liver with tenderness, slight swelling of the feet with extreme pain on pressure but none on active motion. A loud systolic murmur was heard over the entire precordium and laterally to the axilla, very loud also in the 2nd I. C. S. Border of the heart definitely enlarged to the left, mild infection of the gums present—advised examination for Vincent's. Condition at this time thought to be a flare up of old infection perhaps rheumatic fever. The temperature was now 104, smear for Vincent's was negative.

On September the 24th the patient was seen by myself in consultation because of sore throat. The right tonsil showed a large cavity filled with dirty gray membrane, very foul odor to breath.

Impression: Streptococcic infection.

Smear from the throat showed predominating organism to be short chain streptococci. On September 26, 1930, the red blood count showed 1,250,000, hemoglobin 30%, white blood count 1,700, N. 20, S. L. 68, L. L. 14. Blood cultures remained sterile. The patient died on September 28, 1930. The temperature was slightly elevated during most of his stay in the hospital, it ranging from 103 to 105 during the last six days of his illness.

This boy had been sick for several years prior to his admission to the Children's Hospital with a provisional diagnosis of tuberculosis of the sacroiliac joint. While in the hospital he developed what was apparently an acute rheumatic fever from which he was still suffering when he developed the sore throat and the neutropenia to which he succumbed in a few days.

Case No. 3. Mrs. F. L. G., an employee of the University Hospital was admitted to the University Hospital on the medical service of Dr. A. B. Chase. Chief complaints being, sore throat, headache, backache, chills followed by sweats, weakness.

Admitting examination: A well developed and well nourished white female, age 41, temperature 100.6, pulse 84, head negative, eyes react to light and accommodation, nose and ears negative to external examination, mouth shows several carious teeth, throat—tonsils removed, pharynx reddened; neck-cervical lymph nodes markedly enlarged and tender, thyroid was palpable, chest apparently clear, heart not enlarged, abdomen negative.

Impression: 1. Rheumatoid infection, 2. Influenza.

Patient stated she had not been entirely well for about a year. Had had a tendency to nervousness and weakness and she had been bothered some with sinus infection.

On October the 3rd, I answered a nose and throat consultation on this patient and noted the following: nose—no evidence of sinusitis; mouth—gums red and swollen; tongue—had a small ulcer on the tip and on the left side; throat—tonsils removed, there was an ulcer of the pharynx benind the left post-pillar.

Impression: Vincent's angina.

A blood count reported later the same day showed: red blood count 3,850,000, hemoglobin 75%, white blood count 1,250, N. 45%, S. L. 55. A check count showed white blood count 1,350, N. 45%, S. L. 55 and another count later on the same afternoon showed white blood count 1,500, N. 40%, S. L. 60%, Wassermann negative.

On October 4th, the blood showed white blood count 4,120,000, hemoglobin 80%, white blood count 1,240, N. 35%, L. L. 10, S. L. 47. On October 5, white blood count 600, recheck showed 550, N. 4%, S. L. 90%, degenerated cells 67. On October the 6th the white blood count was 300, N. none, S. L. 100. On October the 7th, white blood count 150, lymphocytes and some degenerated cells. On October the 8th, the red blood count had increased to 5,000,000, the white blood count 775, N. none, L. L. 22, S. L. 70, degenerated cells 8.

This patient was given three transfusions of citrated blood, 400 c.c. on October 5th, and 500 c.c. and 300 c.c. on October the 6th. This patient also received a number of treatments of roentgen ray to the long bones. Note: On October 9th, 1931, the ulcerations on the tongue, pharynx and gums were more marked, swallowing difficult.

Patient died ten days after admittance to hospital, the transfusions apparently increasing the red blood count but having no affect on the white blood count. Smears from the gums and throat showed staphylococci predominating. Blood cultures showed large gram neg bacillus. Wassermann negative. No autopsy obtained.

Comment: This patient when admitted to the hospital did not impress one as being in a serious condition but in ten days she was dead. Repeated transfusions had no affect on the white cell count. This case is another typical one of the so-called agranulocytic angina cases, also another one of these cases that had not been in good health previous to the onset of this condition.

Case No. 4. Mrs. L. L. White female, age 52, entered University Hospital on March 26, 1932, at 10:30 a. m., on the medical service of Dr. A. B. Chase. Chief complaints being: Diabetes, weak-

ness and tired feeling for two and one-half weeks. The day before entering the hospital she had a high temperature and began complaining of sore throat. Condition grew progressively worse and a physician was called who sent her to the hospital. This was the third admission of the patient to the hospital. She was first admitted because of a hyperglycemia and a large carbuncle on her back; tne second admission was because of gangrene of the right great toe. Patient had not been taking insulin.

Admitting notes: Well developed, extremely well nourished white female, appears toxic, complains of sore throat and difficulty in swallowing. Respiration labored, pulse full and rapid, patient very restless and in extreme discomfort. Blood pressure 180-60. Throat—firey red with patchy areas of exudate over tonsils. Tonsillar and peritonsillar region swollen. General examination was not done because patient was too sick. White blood count upon admission averaged 700, polys none, S. L. 90%, L. L. 10%, red blood count 5,050,000, blood sugar 400 mgm. Urine showed heavy sugar, diacetic acid and acetone. Another white blood count done that afternoon showed 450 cells, polys 1, degenerated cells 4, S. L. 89, L. L. 6.

At 8:00 p. m. the day of admission 300 c.c. citrated blood was given. The patient developed some inspiratory stridor and she was seen by Dr. L. C. McHenry who made the following notation: "Patient had a dirty membrane on each tonsil with edema of the uvula, palate, lingual tonsils, epiglottis, and aryepiglottic folds. There is inspiratory stridor with very little obstruction at 8:45 p. m., and the vocal tone was fairly sharp." He suggested sedation and tracheotomy if laryngeal obstruction occured or got worse.

This patient died at 12:25 a. m., on March 27, 1932, about fourteen hours after admission and was mentally clear up until a few minutes before she died.

No autopsy obtained.

This patient is another one with a chronic illness, diabetes, who was taken suddenly ill and the chief complaint was sore throat and difficulty in swallowing, who died two days after the onset of the disease. The blood picture being typical of that seen in these cases.

Case No. 5. O. L., admitted on the nose and throat service at the University Hospital on February 7, 1932, because of severe nasal hemorrhage which had begun thirty-six hours previously.

Examination: Patient was a well nourished and well developed, anemic girl, 17 year old. She appeared acutely ill, showed air hunger and was extremely weak. Both nose and throat affected, dirty grey ulcers on the tonsils and pharynx, also the uvula. Bleeding from the anterior and posterior nares. Onset of illness began about eighteen months ago when patient contracted lues. Shortly after this she began taking shots of neosalvarsan and had had about 30 of them at weekly intervals. About two months ago the patient developed a laryngeal condition which so affected her voice that she could hardly speak above a whisper. There were ulcers on the tonsils and on the throat for which she was treated. A few days before entering the hospital she had a hemorrhage from the throat and thirty-six hours before entering, the nasal hemorrhage began. For two months she had been getting gradually weaker and more anemic. Had been menstruating for the past two weeks. The nasal hemorrhage was controlled with anterior and posterior nasal packs. Dr. Wann Langston made the following notes on this patient. "Patient extremely anemic, history of profuse bleeding from naso-pharynx and previously prolonged menstruation. Yet the anemia is not the post-hemorrhagic type, but aplastic as evidenced by the almost total absence of reticulocytes. There is also a marked reduction in thrombocytes. This probably was responsible for the bleeding. It was noted that the vein opened for transfusion did not close by thrombosis. There was a marked depression of granulocytes also, in other words there is almost a complete suppression of all myeloid functions." "The problem is whether the lesions in nasopharynx are syphilitic or due to the blood dyscrasia; or whether the blood dyscrasia may be due to excessive anti syphilitic treatment."

The red blood count on admission was 850,000 with 40% hemoglobin. The following day the red blood count was 1,500,000 and hemoglobin 32%, the white blood count was 1,400, N. 32, S. L. 66, L. L. 2. On the third day in the hospital the red blood cells were 1,590,000, reticulocytes 0.2%, platelet count 9,540, white blood count 650, N. 10, S. L. 80, L. L. 10.

On the sixth day the red blood count was 1,-860,000, platelets 8,980, white blood count 280, N. 8, S. L. 80, L. L. 16. She died on this day.

This patient was given four transfusions of citrated blood and 10 c.c. of calcium gluconate intravenously.

This was a case which had had a great deal of treatment with neosalvarsan and the red blood count, the platelets and the white blood cells all showed a marked decrease and should possibly be calssified as an acute plastic anemia.

According to the literature some patients develop a blood dyscrasia after only a few treatments with the salvarsans and the blood picture may be that of agranulocytic angina, purpura hemorrhagica or acute aplastic anemia.

These cases were all patients at the University Hospital and I wish to express my appreciation to Dr. H. Coulter Todd, Dr. A. B. Chase, Dr. Wann Langston. Dr. T. G. Wails and Dr. Charles Rountree for permission to report these cases which were on their services at the hospital.

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NEW CONCEPTS OF LIVER FUNCTION—REPORT OF A CASE OF PRIMARY CARCINOMA OF THE GALL BLADDER

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New concepts and new ideas flow into the medical literature with ever increasing abundance. Of all the organs to submit themselves to the scrutiny of the research student, the liver has been the most hesitant. Now, however, surgical technique has become so perfected that even that organ is losing its impregnability, and its functions are being investigated by the laboratory worker, roentgenologist and the clinician.

The liver is an integral part of the digestive and metabolic system, in close association with the gall bladder and pancreas. In the three mm embryo[1]; a small longitudinal groove appears in the abdominal cavity. The endodermal cells of this groove proliferate and form a solid mass superiorly and a hollow tube on its inferior aspect. Constriction appears between the intestine and the rapidly growing structure, and we find that solid portion becoming the liver and the tubular portion dividing into the gall bladder with its cystic and common ducts.

The blood supply of this highly vital area becomes differentiated, resulting in two hepatic arteries, a right and a left, to supply the liver parenchyma, with the cystic artery coming from the right branch. The blood supply is also made up of a portal vein, which collects the blood from the intestine, pours it into the liver by two tributaries, a right and a left.

The lymph channels of the liver and the gall bladder, with those of the stomach, drain into the celiac group. The lymph channels of the duodenum and the pancreas also drain into this area.

The cellular structure of this area is comparatively simple. In the liver we find parenchyma cells, cells of the biliary system and reticulo-endothelial cells of Kupffer.

The comparatively simple structure of the liver may explain, in part, its regenerative ability. It has been repeatedly shown that in a dog, 65 to 70% of the liver can be excised and in two weeks normal weight and volume will be regained; and in six weeks normal histology. Repeated excisions do not produce evidence of hepatic insufficiency.

This question of regeneration depends on certain factors, and one of these is an unhampered circulation. Mann[2] of the Mayo Clinic was able to show this in his experimental work, and he was also able to prove that the right and left tributaries of the portal vein do not anastomose. Thus he has shown us that there is a bilaterality of the liver, and that it is divided by an imaginary line from the gall bladder fossa to the entrance into the inferior vena cavae of the hepatic vein. No longer is the liver divided by the falciform ligament. We are no longer dealing with a single organ. Other workers[3] have gone farther and have shown three stream lines of the portal blood—that from the stomach and spleen going to the left portion of the liver; that from the upper part of the duodenum pancreas and head of the jejunum to the right, while the blood from the colon was carried to all parts although mostly to the left lobe. All the portal blood system intermingles with the biliary system in close relationship.

Mann[2], by the use of a reverse Eck fistula, was able to continue his study on the liver. He noted that dogs, whose livers had been removed, remained normal for a few hours, then began to develop muscular weakness and flaccidity. In about an hour, reflexes returned, became exaggerated, muscular twitching developed, then convulsions, vomiting and death.

When the urine and blood were studied there was found a progressive decrease of sugar, increase of uric acid to a large amount, increase of pigment and the appearance in the urine of a yellow flocculent pigment. The increase of uric acid was not manifested clinically .

When glucose was injected intravenously, the dog would recover for a while, even though he were in convulsions. This could be repeated several times before the animal lost all ability to recover.

Similar experiments were tried on a depancreatized dog, and the same symptoms developed as in the dog where the liver alone had been removed. If liver and pancreas were removed at the same time the hypoglycemia of the liver complex developed and predominated the picture. Insulin merely hastened the hypoglycemia and the demise. The glycogen in the muscles was merely a change to lactic acid.

Evidently the glycogen of the liver alone can be changed to blood sugar.

Hence we see the further importance of the liver in the control of blood sugar level, and it seems directly responsible for the recovery of the blood sugar level, even so the hypoglycemic action of insulin is distinct.

RELATION OF LIVER TO PROTEIN METABOLISM

We have known that the liver plays a large part in the metabolism of protein. Mann, in his experiments, has been able to show that when the liver is removed, the formation of urea ceases. The amount of uric acid present in the body increases to high concentration. When the common duct of a dog is ligated, protein appears in the urine[4]. Liver perfusate shows allergeric reaction to this protein. Thus showing that the urinary protein is due to some liver deficiency.

The absorption of degenerating liver quite certainly does produce a toxic reaction experimentally. Portions of liver, when dropped in the peritoneal cavity produced death in eighteen to twenty-four hours. After a period of intense toxemia showing (1) a fall of concentration of serum in plasma; (2) an increase in coagulation time; (3) an increased amount of serum and uric acid in the blood. This was questioned by workers who thought death was due to a peritonitis, caused by an organism simulating B. Welchi. No organisms, however, were found. When pulverized autoclaved portions of liver were put in a chest and in an axilla, the picture of intense toxemia with the blood changes mentioned developed[4].

LIVER IN REGARD TO JAUNDICE AND CALCIUM METABOLISM

The idea prevailed for years that the Kupffer cells on the reticulo-endothelial system had much to do with the formation of bile. However, no satisfactory explanation has been given for the hemolytic type of jaundice which developed when the biliary tract is apparently normal.

It has been shown that the removal of the liver, spleen and intestinal tract does not stop the formation of bile; hence it is believed that the bile is really made in the bone marrow and merely stored in the Kupffer cells.

The liver does have an important part to play in the metabolism of bile because dogs with a common duct ligated gave a direct reaction to the Van der Bergh; but after hepatectomy, the reaction became indirect. Bile salts themselves can be injected much in excess of concentration seen clinically, and they will not produce any symptoms of jaundice[4].

The blood calcium is not changed perceptibly in jaundice although there is evidently some upset in its metabolism. Too weak concentration of calcium evidently had some physico-chemical action and caused a type of cloudy degeneration with seepage of protein into the urine. The changes in the coaguability of the blood may be due to the upset in calcium; this in turn may be due to the change in fibrinogen but we do not feel convinced of the part fibrinogen plays in the process of coagulation of the blood.

LIVER AS A DETOXIFIER

The action of the liver in excreting heavy metals, for example, mercury and some alkaloids and strychnine, etc., is known. It may have many other properties in this line that we do not know much about at present.

LIVER FUNCTION TESTS

It is impossible to test the function of an organ when we do not thoroughly understand those functions. Most of these liver function tests have been unsatisfactory. The phthalein dyes are much favored by some clinicians. Galactose may be useful if the theory that it is stored immediately by a sound liver, is correct. In time, tests that can be successfully used by clinicians will be worked out, but at present none are satisfactory for the practitioner.

LIVER IN RELATION TO CLINICAL CONDITION

Thus far discussion has been mostly of experimental work. Now we shall consider liver function in relation to definite disease entities.

When liver treatment of pernicious anemia was first brought out, a skeptical attitude was taken by many men. It was not known just why liver substance seemed to help. This has been shown to be due probably to a vitamine E and the iron which fresh liver carries, and which is also present in the liver of pernicious anemia subjects. Pernicious anemia may be merely a form of scorbutic anemia. A crystalline salt has been isolated which can produce remission in pernicious anemia. It does seem peculiar that the extract

of stomach should be also efficacious in pernicious anemia.

We have shown how the liver seems to have something to do with the control of blood sugar level in depancreatized dog—a fatty degeneration of the liver takes place in seven to twenty-four months, probably due to the inability of the liver to metabolize the fat.

LIVER IN GALL BLADDER DISEASE

In spite of the vast amount of work done on this problem we are still very much at sea. One thing is certain, and that is that the liver does become affected in any long standing disease of the gall bladder system. Patients, who have had a long standing pathological condition of the gall bladder sometimes react in a definite manner to gall bladder surgery. After an operation these patients exhibit symptoms somewhat similar to the reaction seen after a total hepatectomy in dogs.

In a study of causes of death following gall bladder surgery, fifteen" cases of this type were found. Much of the clinical study of this condition has been done by Heyd, and he differentiates the reaction into three sub groups. Group 1: Patient does not entirely react from the anaesthetic but gradually passes into a coma with a gradually ascending temperature Group 2: Generally occurs in a patient with jaundice. The immediate postoperative course is satisfactory, then they show excitation, going into coma and death. Group 3: Comes on twenty-four to thirty-six hours after operation and simulates shock. It too, is fatal.

In all these cases, the preoperative study is normal; but the postoperative study shows a gradually developing hypoglycemia, an increasing blood urea nitrogen and uric acid. In most cases there is an upset of the carbon dioxide confining power of the blood, resulting in either an alkalosis or an acidosis. No evidence of pneumonia, peritonitis or menigitis have been found in any of these cases, even after blood culture, spinal tap and post mortem. Various causes have been suggested, for example, cholangitis; interference with the right hepatic artery. It has been considered that the relief of biliary pressure has acted like the sudden relief of intravesical tension when too speedy decompression has been done on a distended bladder, with consequent renal collapse. The lymphatics between the gall bladder and liver are open, and this may allow for an absorption of disease or chemically altered liver cells or toxic bile.

One condition which would seen to predispose to such a postoperative reaction is the long standing biliary infection, which has been complicated by carcinomatous involvement. Much attention and publicity have been given the carcinoma of the uterus, etc., but little to carcinoma of the gall bladder because it has been considered comparatively infrequent in development. However, this is not the case. Graham, who considers that almost sixty percent of people who some time or other in their life have cholecystic symptoms, gives the following statistics:

Buday	Postmortem	5,330	Cancer	336
Bejact	Postmortem	6,808	Cancer	692
Redlich	Postmortem	5,002	Cancer	496
Von Berencsy and Von Wolfs	Postmortem	19,908	Cancer	2,814

During 1925 and 1926 in the United States 10% of cancer deaths were due to cancer of the gall bladder or nine per 100,000 of population.

Previous cholecystic disease seemed to predominate in these cases, and especially calculi being found anywhere from sixty-nine to one hundred percent of cases of primary cancer of the gall bladder. Some series of statistics indicate that anywhere from four to fourteen percent of the cases of cholelithiasis will if untreated, develop cancer. The moral is obvious and should do much to help settle the problem of cholecystectomy versus gall bladder drainage, either operative or nonoperative.

REPORT OF CASE

The case I have to present is that of a woman, Mrs. C. Y., referred by Dr. J. C. Marshall and treated in the Sisler Hospital. Patient, age 63; two children; had tyhoid fever age 18; normal menopause; had estivo-autumnal fever in September, 1931, verified by smears. Patient had been having attacks of pain diagnosed as "gall bladder attacks" for almost fifteen years. She had never been jaundiced and her general health had been good. In the two to three weeks previous to her admission to hospital she had developed an inordinate appetite, eating six good sized meals every day. It is interesting to note that in dogs, whose bile has been entirely sidetracked from their digestive system, will develop the same condition. In spite of this increased appetite she had lost five to six pounds in the corresponding period of two weeks. Pain had become constant with relief only slightly by opiates, and was steadily becoming much more severe. Examination showed marked tenderness and rigidity over the right upper quadrant. There was no jaundice. Other examinations were normal. Blood pressure 120-65. Red blood cells 4,190,000. Hemoglobin 80%. Urine normal. Iteric index and blood sugar and urea were within normal limit, with no evi-

dence of acidosis. Temperature, pulse, respiration, etc., were normal. Due to the increasing severity and constancy of the pain with the gradual loss of weight, malignancy was suspected by the referring doctor.

Operation revealed a liver that was slightly enlarged and with an increased congestion. The gall bladder was shrunken about two inches in length and collapsed under the border of the liver. The cystic duct was small, twisted and friable (normal diameter one-eight of inch). The common duct was also friable and shrunken. There were many adhesions of increased firmness and several lymph glands were palpable. The aspect of the gall bladder adjacent to the gall bladder fossa was thickened and hard and slightly widened. There was an area of infiltration about one inch in diameter and one-eighth of inch thick, lying next to the liver. The portion of the gall bladder in proximity to this area was also very much thickened and gray. A calculus the size of and shape of a date stone (three-quarters by one-eighth inch) was imbedded in the cystic duct and had practically obliterated this structure down to its opening into the common duct. The appendix was enlarged and cystic. It was felt that the patient had entered upon the last stage of the disease and that pain, even under opiate, would be unbearable if nothing was done. Removal of gall bladder was decided upon. This really meant a removal of gall bladder and cystic duct. By careful dissection the gall bladder with its infiltrated area was removed. The cystic duct was separated from the common duct. The common duct had to be divided at its junction in order to insure complete removal of the gall bladder and cystic duct. The hard, friable common duct was anastomosed with difficulty. The bile seen in the operative field was watery, gray and very thin. The liver showed no gross evidence of metastasis. Stomach and duodenum seemed normal. Patient had ether anaesthesia. Her condition during the operation was good and there was no evidence of shock postoperatively.

The patient reacted normally to the anaesthetic, peristalsis returned in the usual time, and there was no evidence of pneumonia or delayed shock, acute dilatation of the stomach or intestinal obstruction. The patient showed a gradually ascending temperature with no remission, 101 up to 106° F. while the pulse did not rise proportionately. The patient's mental state gradually became dull, going into a mild delirium and then into coma. Jaundice was absent. Urinary secretion diminished. There were no findings of acidosis. Fluid and dextrose were given intravenously but they did not seem to affect the picture in any way. Patient died the third day postoperative in a coma with temperature 106° F. and pulse 130.

Several factors; the ether anaesthetic, the widespread dissection of the biliary tract, and the manipulation of the common duct plus the age of the patient and the duration of her symptoms had an important bearing on the subject, but none of these can explain fully the clinical picture.

A postmortem examination was denied. Pathological examination of tissue removed showed a mucocele of the appendix and a primary adenocarcinoma of the gall bladder.

CONCLUSIONS

(1) Need of further clinical study of the relation of the liver to body function. (2) Importance of the recognition of the frequency of primary type of cancer of the gall bladder. (3) Necessity of exhaustive examinations, clinical and chemical of all patients suffering from gall bladder disease.

1. McMurrich—Development of the Human Body.

2. Mann—Med., Vol. 6, 1927, pp. 375-511.

3. Copfer & Dick—Arch. Surg. 17:408, 1928.

4. Newburgh & Marsh—Arch. Int. Med. 1925—XXXVI: 682.

5. Mason E. Cetal—Journ. Lab. & Clin. Med. 1925: X, 662.

6. Andrews, Schlegel and Thomas—Surg. Gyn. & Obst., 1928, XLVII, pp. 179-182.

7. See 2.

8. Rowntree, Greene & Aldrich—J. Clin. Invest., 1927—IV, 545.

9. Whipple—Am. Journ. of Med. Sci. 179:628—1930.

10. Stanton, 1930—VIII Amer. Journ. of Surg. 1026.

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FOCAL ENLARGEMENT OF TEMPORAL BONE AS SIGN OF BRAIN TUMOR

Ross H. Thompson, Philadelphia (Journal A. M. A., July 30, 1932), records and discusses two instances of external prominence of the squamous portion of the temporal bone in children, directly overlying an intracranial tumor and not due to hyperostosis but to bulging. In each, the occurrence was sufficiently early to furnish the principal evidence of the presence and localization of the growth. In one case the tumor was of meningeal origin and had no buffer between it and the thin squama directly overlying, which according to roentgen microscopic evidence was invaded by tumor cells and thereby increasingly weakened. The dura adherent to the bone pinioned the tumor to the skull vault and created a tendency to limit direct pressure outward and inward in the immediate neighborhood. Inward pressure on the optic radiation would account for the left homonymous hemianopia. Outward pressure would account for the thinning and bulging of the bone. Pressure internally and above in the direction of the internal capsule would account for the pyramidal tract symptoms. The growth probably slowly decompressed itself by a gradual formation of the lump. The absence of symptoms and the improvement in the optic neuritis one year before admission probably were due to the increased cranial capacity occasioned by the bulge, although the latter was not discovered until one day before admission. In the other case the tumor did not arise from the meninges. It was of deep origin and was shown by the ventriculogram to have shifted the lateral ventricles and midline structures to the left in the direction of the opposite squama. The total lack of observable neurologic changes may thereby be accounted for by the giving way of the right squama, and also by a slighter degree of bulging of the left squama, thus creating an enlarged intracranial capacity by an increase in the cranial diameter between the two squamae.

A NEW FIELD OF ACTIVITY IN MEDICAL PRACTICE

CARL PUCKETT, M.D.
OKLAHOMA CITY

In meeting the unusual conditions confronting physicians at this time we believe they will welcome something new that may be used in the practice of medicine. What we have to suggest is an old procedure, not heretofore widely used in general practice for various reasons, some of which are given below, modernized and made practical; and with this suggestion is presented a new, or improved product, standardized until its usefulness and dependability is unqestioned. Such a product has recently been perfected and its use holds forth an opportunity for good results as an aid in early diagnosis. We refer to the new tuberculin, MA100, now available to the medical profession after years of study and research by the National Tuberculosis Association assisted by various scientific bodies, individuals and biologic firms. This is a tubercle bacillus protein. It is prepared in four types, human, bovine, avian and timothy.

Tuberculin skin tests in some form have been used almost as long as we have had tuberculin. Gradual improvement has been made throughout in its use as a diagnostic agent. The intradermal test is the approved method and largely used to the exclusion of the Pirquet method. The former is called the Mantoux method and used the same as the Schick test for diphtheria, with interpretation of the reaction in forty-eight hours. This new tuberculin is used after the Mantoux method. It is sensitive and selective and has no severe reactions. It is an excellent first step in locating children with any tuberculous activity, those who may have later disease though quiescent at time of the test and for excluding those cases wherein no infection may be shown. Below is given the comment concerning this new tuberculin in "Tuberculosis Abstracts" for August, 1932.

"Old Tuberculin discovered by Robert Koch in 1890 is a mixture of the bouillon and all metabolic products of the tubercle bacilli grown on it. Greater precision of the tuberculin test is highly desirable and for this a more specific and less variable testing substance is necessary. The chemistry of the tubercle bacillus has for some years been studied by investigators selected by the Research Committee of the National Tuberculosis Association, of which William Charles White is chairman. One of its results has been the isolation of a protein, which is designated as MA100. This substance causes the typical skin reaction in persons infected with tubercle bacilli. To test the reliability and practicability of it a study was carried on cooperatively by a number of workers. An analysis of the results is reported by Mariette and Fenger in the March 1932, American Review of Tuberculosis.'"

Since this new tuberculin is now available it is our hope that physicians will use it. In the state program of tuberculosis control and prevention, the public is being told about the new diagnostic serum. Physicians will be asked about it and often will be called on to use it. There should be remuneration both in the test and the after-care necessary when positive reactors are found. When there is any suspicion on the part of parents of danger to the health of their children a check-up is likely to be desired, especially in such a dread disease as tuberculosis. And where findings are negative, after two or three tests, parents will feel very grateful to the physician who can give this positive information.

All contact children should be tuberculin tested as well as all suspicious cases. According to reliable statistics there are nine active cases of tuberculosis to each death, or about 11,000 cases in Oklahoma; and three contacts to each case, or 33,000 that should be checked. Most of these are children. Physicians can find these in their practice. It is largely a matter of looking for them, and using the tuberculin MA100. It is not treating folks ill with tuberculosis as physicians have been accustomed to seeing adults. But it is finding the children who have the infection within their bodies, usually quiescent, and taking the steps necessary to prevent active disease later.

The problem of tuberculosis control and prevention has been largely one of education of the public. First it was a matter of education as to the value of rest and sanatorium care, breaking the contact of the well with the sick and building resistance. All of this has had the support of the medical profession. But since the treatment of tuberculosis was preeminently a sanatorium problem and the fact that the chronicity of the disease pauperized most of the patients, usually adults, it has not been a source of much income to physicians. Hence they have not given tuber-

culosis the attention accorded other ailments of humanity. But now that the diagnosis of tuberculosis in its pre-active stage is possible through the skin test and X-ray, especially applying to children, physicians in general practice will find this an excellent field of activity at a time when there is someone to pay the bills.

Education of the public will continue to be the program of tuberculosis associations. Results will now tend toward a greater dependence on the family doctor. This is particularly our aim. In our demonstration clinics in cooperation with local physicians where the tuberculin test is made, aimed to interest the public in diagnosis of tuberculous children, the patient is referred to the family physician for interpretation of the reaction and whatever follow-up is necessary. We believe this program of early diagnosis and prevention of active tuberculosis belongs to practicing physicians, with whatever assistance may be necessary by public agencies. Yet with the great strides recently made in possibility of early diagnosis of tuberculosis physicians are not giving this much attention. The reasons have been stated It should be different now as we are attempting to show. But the public wants to get rid of the menace of tuberculosis. Unless the medical profession manifests an interest in this 33,000 potential cases among whom many are able to pay, some form of free clinics will be eventually started. Then we will hear much about "State medicine." It is our purpose to refer these cases to practicing physicians and we hope free clinics will never be necessary.

The intradermal skin test with MA100 should be used in all tuberculosis contact cases among children and in any case as a matter of elimination where diagnosis is difficult. If it is used in all children many unsuspected cases will be discovered. Then a search for the source of infection would be the logical course. Often it is found to be a servant in the home; or a grandparent with a chronic cough not suspected as tuberculous. And, more important, it may be a parent. The usefulness of the tuberculin test is indicated when it is realized that children do not show a positive reaction except where they have been in intimate contact with tuberculosis. as in the home, over a considerable period of time. In these children the proper procedure is removal of source of infection. correction of physical defects if any, rest, sunlight and wholesome food. Even where the contact cannot be entirely broken a knowledge of the danger will aid greatly in preventing further infection.

The skin test is not so useful in adults because a large percent of all show a positive reaction. However, since the severity of the reaction may help to determine the amount of infection the test may aid the physician, who is not a specialist in chest diseases, in early diagnosis of suspected cases or to eliminate tuberculosis from consideration where a mild or no reaction is shown. Therefore the use of the new tuberculin should be more of a routine of the practice of medicine.[2]

Below are given some statements from authorities to sustain the argument as to the practicability of diagnosis and treatment of the childhood type of tuberculosis. Opie: "We know that, within certain limitations, latent infection can be recognized and its intensity measured by well understood procedures. . . . . A better understanding of how the disease behaves during its period of latency points the way to the prevention of its more harmful stages." McPhedran: "The diagnosis of tuberculosis in its latent or pre-clinical stage is entirely a practical procedure." Austrian: "The number of young individuals exposed to the risk of tuberculous infection that will develop clinical tuberculosis is relatively small if contact with the source of infection is removed, and good conditions of hygiene and of diet are established."

The childhood type of tuberculosis should prove to be a useful and remunerative field of the practice of medicine. The ability to diagnose a latent or pre-clinical condition, as most of these cases are found to be, is an evidence of professional skill. It will appeal to the parents and friends of these young patients.

1. The Oklahoma Tuberculosis and Health Association, 22 West Sixth Street, Oklahoma City, will mail the August Abstracts to any physician on request. This contains description, findings, and conclusions concerning MA100. With this will be mailed a mimeographed bulletin "Childhood Type of Tuberculosis" which describes methods of procedure and interpretation of reaction in the tuberculin test. This Association also has some educational films for the public that may be shown in picture shows, one of which outlines the procedure in diagnosis of tuberculosis in children, including the skin test. Another film is an excellent health comedy.

2. This new tuberculin is available through Mulford Biological Laboratories. Parke Davis and Company are also mentioned, by the authors of the article from which the August "Tuberculosis Abstracts" are taken, as participators in this research so no doubt this biological house has or will have it for sale. It is prepared in one c.c. ampoules; one-twentieth c.c. is sufficient for a test according to manufacturers. The tuberculin may be kept in a refrigerator over a long period of time and drawn out as required under usual aseptic precautions. A one c.c. tuberclin syringe is recommended for making these skin tests.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal the manuscript will be returned to the writer.

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EDITORIAL

"KEEPING UP WITH SALLY"

Gentlemen of the oleaginous voice extol the virtues of their new offerings. As proof of the efficacy of their product they cite the enthusiasm and results of Doctor ————, who treated, probably six cases of some well understood self limited diseases as proof of its fitness.

Ask them. Have your compounds been offered to, and examined by the Council on Pharmacy and Chemistry of the American Medical Association? Beware of the compound or offering which has not had their investigation and favorable report. Remember this type of product has enormously decreased in the past fifteen or twenty years, however, there remain far too many, and certainly the physician, personally, has no time or means to properly investigate them, and their use is practically an experiment on his patient. Formerly the rear end of most drug stores was filled to overflowing with one to five gallon mixtures, most of which should have been dumped out in the sewer, or their constituent, if needed, should have been prescribed by the physician, that is, if he knew his "oats." The doctor depending upon the ubiquitous "detail man" to tell him of the wonders of this and that, has a poor fountain of information to say the least. This, of course, does not apply to the representatives of many well known high class pharmaceutical houses, none of which would think of putting on the market a preparation without the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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READ YOUR MEDICAL JOURNAL

And read from cover to cover. You will note that many advertisers change their copy monthly and have something worthwhile in the way of a message for the physician. We have a supicion that a certain percent of our members do not read their Medical Journals, unless they happen to be especially interested in some one or more particular articles. This is a mistake, for our writers nearly always make an attempt to so frame their articles that they will appeal to the general practitioner, and this is the correct attitude for the mass of Oklahoma physicians do general work and are not specialists. In the back end of the Journal is a directory, containing the list of officers, delegates to the American Medical Association and members of various committees. Notwithstanding this we constantly receive letters wanting information which that page carries monthly. This is rather proof positive to us that some of our members do not read their Journals. It may interest our readers to know that articles published in the Journal of the Oklahoma State Medical Association are rather widely abstracted. One of the most scientific publications in the United States finds the articles meritorious enough to abstract several each year. Our abstracts are very carefully selected and some of them are unusually worth while. The members who

fail to read the Journal will overlook something worth while to himself.

TREATMENT OF FRACTURES ON THE SPOT

A railroad surgeon once told the writer that one of the best handled cases that had ever come into the hospital came in with a piece of picket fence as a splint. This was a fracture of the femur. Fractures of the long bones should be immobilized and extension applied in some manner at the earliest possible moment, for contraction of the muscles produce an overlapping which is often difficult to overcome and in certain fractures there is great danger of moving bone ends producing very severe injury to adjacent vessels and nerves. For these reasons fractures should be given all the immobilization and extension possible at the earliest possible moment. One of the most useful appliances, when properly applied is the Thomas splint and its various modifications. The Thomas splint often means miles of relatively easy travel for the patient, whereas other types of dressing may or may not only get the end desired but produce excruciating pain on the part of the patient. We believe that as time gones on, and due specially to the severe economic condition that many fractures are going to be treated at home, There seems not much reason why most fractures should not be reduced at home, reduction and maintainance of position retained by an occasional visit of an intelligent physician or surgeon.

COUNTY SOCIETIES — REORGANIZE AND GET TO WORK

The backbone of a fairly hot summer is broken, and people, including doctors, feel better, therefore now is the time for every County Society and group of physicians in the State to meet, laying out their work as far as possible, taking advantage of the rapid progress that is being made in medicine and surgery and make the County society generally worth while.

The writer is, and always has been opposed to arbitrarily assigned subjects of papers to members of the county societies. The writings of physicians should be voluntary, thus they should bring out those things in which the physician is most intensely interested. A meeting with no papers whatever, but a general discussion of cases, their symptoms, course of the disease and final termination is more worth while than a paper gotten up by arbitrary assignment from a physician who has little or no interest in the subject.

We have pointed out before that it is not necessary to have a large number of physicians present to have a useful meeting. We have also called attention to the fact that there are scores of high class, unusually well informed physicians, surgeons and specialists in other lines located in Oklahoma. These men are always glad to attend, upon invitation, medical meetings, and their services should be utilized. Only in this way may the general practitioner keep up to date.

OKLAHOMA CITY ANNUAL FALL CLINIC

The third annual fall clinical conference of the Oklahoma City Clinical Society will be held in Oklahoma City October 31, November 1, 2 and 3 with twenty-one distinguished leaders in the medical and surgical fields as guest lecturers, according to Dr. Henry H. Turner, director of clinics.

Although attendance at conventions and conferences has shown a tendency to slump this year, sponsors of the conference, through provision for a greatly enlarged program, expect the 1932 meeting to show an attendance increase. Invitations have been sent 12,000 doctors throughout the middlewest and southwest.

The program, which will include daily general assemblies, one hundred hours of post graduate work, two night symposia, daily round table luncheon conferences, scientific and commercial exhibits and an elaborate schedule of entertainment, has been arranged so there will be no confusion among registrants desiring to attend particular courses.

The conference will be operated on a strictly non-profit basis. The registration fee will be ten dollars and will admit registrants to every event of the four-day conference schedule. Those desiring to make advance reservations for the function should address the director of clinics, 319 Osler Medical Building, Oklahoma City.

The annual clinic dinner, with Dr. E. H. Cary, Dallas, Texas, president of the American Medical Association, as speak-

er, will be held the second night of the conference. Symposia will be held the first and third nights on "Urology" and "Industrial Surgery," respectively. Dr. Hugh Young, Baltimore, and Dr. LeRoy Sante, St. Louis, will conduct the symposium on "Urology." Dr. E. G. Brackett, Boston, and Dr. Henry H. Kessler, Newark, will conduct the symposium on "Industrial Surgery."

Because of their productiveness in past years, round table luncheon discussions, presided over by guest lecturers, will be extended twenty-five minutes in length this year to last an hour and forty-five minutes.

Complete list of distinguished guests may be found on page five of the Journal.

Editorial Notes—Personal and General

DR. J. HUTCHINGS WHITE, Muskogee, has returned from a visit to Rochester, Minnesota.

DR. A. M. BUTTS, Holdenville, who has been ill for the past several weeks, is reported improving.

DRS. C. B. AND PAULINE BARKER, Guthrie, have returned from three months spent in Europe.

DR. LEILA E. ANDREWS, Oklahoma City, has returned from Santa Monica where she spent the past month.

DR. AND MRS. S. N. MAYBERRY, Enid, have returned from Alexandria, Minn., where they spent the summer months.

DR. AND MRS. ARTHUR W. WHITE, and son, Oklahoma City, have returned from a two weeks vacation in Duluth, Minn.

DR. AND MRS. E. S. FERGUSON, Oklahoma City, have returned from a motor trip to the northern lakes and their farm near Port Stanley, Canada.

DR. F. W. HENDERSON, Tulsa, who has been ill with appendicitis is improving and will return from Salt Lake City, where he was vacationing when stricken.

GRADY COUNTY MEDICAL SOCIETY met at the home of Dr. Martha Bledsoe, Chickasha, September 15th. A chicken dinner was served and the society was addressed by Dr. J. M. Postelle, Oklahoma City, on "Colitis."

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION met September 13th at Norman, at the Central State Hospital. The following program was given:

8:00 A. M.—Golf, Norman Country Club.

10:00 A. M. to 12:00 noon—Ward Walks and Clinics.

(A) Manic and Schizophrenic Reactions—Dr. J. J. Gable, C. S. Hospital; Dr. J. L. Day, C. S. Hospital.

(B) Organic Brain and C. N. S. Conditions—Dr. Carl T. Steen, C. S. Hospital; Dr. Chas. R. Rayburn, C. S. Hospital.

(C) Endocrine Dyscrasias—Dr. Chas. R. Brake, C. S. Hospital; Dr. Ben H. Cooley, Norman.

Luncheon

1:00 P. M.—Veterans' Cafeteria, Hospital Grounds.

Dinner Addresses

Address of Welcome—Rev. Forney Hutchinson, Oklahoma City.

Response—Dr. B. H. Burnett, Duncan.

"Doctor's Day"—Dr. A. J. Weedn, Duncan.

Remarks—Dr. C. R. Hume, Anadarko.

Address—Dr. D. W. Griffin, Superintendent Central State Hospital, Norman.

Quartet—Drs. Tom Lowry, Dick Lowry, Francis Deland, and L. J. Starry.

Scientific Section

2:30 P. M.—"Results in the Treatment of Advanced T. B."—Dr. Horace Reed, Oklahoma City.

Discussion—Dr. Phil McNeil, Oklahoma City.

2:50 P. M.—"Infantile Diarrheas."—Dr. Ray Lindsay, Pauls Valley.

Discussion—Dr. J. M. Gordon, Ardmore.

3:10 P. M.—Business session—House of Delegates.

3:20 P. M.—Scientific Section—"Obstetrical Problems Arising in The Pre-Natal Period."—Dr. Roy E. Emanuel, Chickasha.

Discussion—Dr. J. B. Miles, Anadarko.

3:40 P. M.—"Ringworm of the Feet."—Dr. Darrel G. Duncan, Lain-Roland Clinic, Oklahoma City.

Discussion—General.

Address—Dr. G. N. Bilby, Commissioner of Health, Oklahoma City.

4:40 P. M.—Golf, Norman County Club

The Auxiliary entertained the ladies at the home of Dr. and Mrs. W. D. Griffin.

CADDO COUNTY MEDICAL SOCIETY met at the new Anadarko Hospital, Friday, August 26, 1932.

The Anadarko Chamber of Commerce served 7:00 o'clock dinner to all doctors present.

Program

1. General Diagnosis of Tuberculosis—Dr. L. J. Moorman, Oklahoma City.
2. The Diagnosis of Disease of the Gall Bladder—Dr. Lea Riely, Oklahoma City.
3. The Community Hospital as an Educational Center—Dr. Wann Langston, Oklahoma City.

WOMAN'S AUXILIARY

The Women's Auxiliary is better organized than ever before. The local organizations have nearly all started their work for the year. Among the most active are Tulsa, Oklahoma, Pittsburg, Pottawatomie and Choctaw counties, the last be-

ing the latest organization, or what you would call a baby organization.

The Women's Auxiliary in Oklahoma City engaged in work last year for the Crippled Children's Hospital. They completed two hundred garments for the children, prepared fifteen scrap books ready for the cut-outs and completely finished fifteen scrap books. Four dozen scissors were also bought and sent to the children. Auxiliary members also donate a day or more each month to Red Cross service.

During the year a shower of baby clothes was sent to the City Nursing Bureau for welfare work. At Thanksgiving and Christmas, baskets of food and clothing were sent to several needy families. The Oklahoma County Auxiliary consists of ninety-seven paid-up members and nine honorary members.

DOCTOR JOSEPH MITCHELL HANCOCK

Dr. J. M. Hancock, fifty-five years of age, former Chandler pioneer physician, was killed instantly August 22nd, in his office in Tonkawa, when he came in contact with an X-ray machine while treating a patient.

Dr. Hancock was born at Sulphur, Kentucky, September 25, 1877. He graduated from the Louisville Medical University, Louisville, Kentucky, and started the practice of medicine in that state. He came to Oklahoma in 1902, settling in Kendrick.

Later he moved to Chandler, which had been his home up to within two weeks of his death. Dr. Hancock was a veteran of the Spanish-American war and World war.

Funeral services were in charge of the Masonic Lodge, American Legion and Veterans of Foreign Wars. Burial was in Chandler.

Dr. Hancock is survided by his wife, a daughter and two sons.

THERAPEUTICS AND MEDICINE

Robert L. Levy, New York (Journal A. M. A., July 30, 1932), believes that one cannot separate art from science, and that art, in the sense of skill in application, should not be given special consideration in relation to medicine. As Swift has phrased it, "no artist can be very eminent without knowing the fundamentals of his art. The fundamentals of medicine rest in the science of medicine." Therapeutics may be regarded as the foundation on which was built the superstructure of medical science. Certainly, therapy is an integral part of medicine, and any scheme that aims to divorce these two retards the development of both. The therapeutic aspect of medicine concerns itself with all the procedures that may modify the natural course of disease. Such procedures are commonly carried out with the idea of alleviation or cure. But often the study of the efects of various manipulations throws valuable light on the phenomena of disease itself. Investigation in therapeutics is obviously essential for progress, and the rules for conducting it are the same as those which are applied to the pursuit of any other scientific problem. In therapeutics there is especial need for comparative experimentation in order to establish beyond question the relationship between cause and effect. When imperfect knowledge still prevails, empiricism in practice is permissible. But it is to be sanctioned only until the scientific method of examination by means of experiment has afforded either justification or condemnation. Not only the methods of therapeutic approach, but the individual case, must be considered in the light of scientific experiment. Each patient presents a problem differing from that of every other patient because of the individual idiosyncrasies that are inherent in living organisms. It is, accordingly, sometimes necessary to follow the method of trial and error. But of one thing the physician should always be convinced in his own mind, namely, that the remedy tried will not be harmful. The desire to help inspires action. Yet not infrequently misdirected therapy, though well intentioned, causes more damage than would result from failure to interfere with nature's plans for repair. In the management of human beings, personal relationships must inevitably play a prominent role. Consciousness on the part of the patient that his physician is thoroughly grounded in the principles of his profession favors the development of a receptive and cooperative state of mind. But this is not enough. The qualities that enter into the make-up of the personality, many of them only remotely concerned with scientific attainment, often exert a dominant influence. It is the combination of intellect and character that defines the therapeutic artist.

CLINICAL SIGNIFICANCE OF VITAMIN D IN INFANCY AND CHILDHOOD

According to Frederic W. Schultz, Chicago (Journal A. M. A., July 30, 1932), a nation-wide propaganda emphasizing the importance of vitamin D in proper growth and development of the animal organism and calling attention to the sources from which it can be made available has seized on the popular imagination to an almost unbelievable degree. There are comparatively few infants or children now who are not receiving cod liver oil in some form or are extensively exposed to solar or other forms of radiation. One cannot escape the feeling that a somewhat similar criticism is warranted with regard to the use of light as a source of vitamin D. In an excess of zeal the public has seized on all forms of radiation with an enthusiasm that has reached almost alarming proportions. There is considerable evidence, both in the experimental animal and in the human subject, that light can be harmful if used to excess. All clinical evidence seems to show that excessive use of light in any form can have effects quite the reverse from those anticipated or desired. A return to a more moderate use of this potent agent and remarkable source of vitamin D would seem to be reasonably indicated, at least until its potency can be more accurately measured than is now possible. Vitamin D is one of the indispensable essentials of the growing animal oragnism. This knowledge and its widespread use has already resulted in much good. The incidence of rickets, formerly so large, has been diminished to a remarkable degree and with it the complicating features which directly or indirectly were so large a result of this disorder and contributed in large measure to infant morbidity and mortality.

ABSTRACTS • REVIEWS • COMMENTS AND CORRESPONDENCE

UROLOGY and SYPHILOLOGY

Edited by Dr. S. D. Neely, M.D.
Muskogee, Okla.

Gonococcal Pyelonephritis. Jenner G. Jones, St. Joseph, Mo. Journal Missouri State Medical Association. July, 1932. Page 297.

The author cites a case, male white, aged 23 with symptomatology dating back sixteen months which went to nephrectomy and was proven to be gonococcal pyelonephritis. Diagnosis was arrived at pre-operatively through a cystocopic study.

Gonococcal cystitis is rare, and even more rare in gonococcal pyelonephritis, he states that the belief is that it is a hematogenous infection. It is very rare to find the gonococcus in the kidney pelvis in pure culture, it is most often found associated with colon bacillus or the staphylococcus. He calls attention to the fact that a simple urinalysis made does not rule out infection of the upper urinary tract. Geisinger in Journal Urology 25:649, 1931, demonstrated that the drainage of pus from an infected kidney through an indwelling ureteral catheter is intermittent over a period of hours. In doing cystoscopic examination and the finding of gonococci it is often believed that this is a contamination from the lower urinary tract, this should be ruled out by repeated examinations.

Treatment of Heredosyphilis. F. J. McCauley, M.D., Newark, N. J. Journal of the Medical Society of New Jersey, April, 1932.

This article should be read by every physician who attempts to treat syphilis, and especially syphilis in children, heredosyphilis.

The author censures those men who try to divide clinically and therapeutically those types of lesions caused in syphilis, he says they are caused by the same organism, and the results are similar. Some may show early manifestations, some not until puberty or after, still the therapeutics is the same. Pregnancies in an untreated mother may result in repeated abortions a few times, but finally due to her defensive mechanism the disease becomes so attenuated that a live baby is born. Because these mothers have been treated during the past few years in the large cities, more varied lesions are occurring in the offspring at birth. Syphilis of the recurrent stage or latent syphilis without clinical manifestations as gummatous and degenerative lesions. The majority of the heredosyphilis seen today does not correspond to the old description. The author states the prevention is the first thought, a blood Wasserman in the earliest stages of pregnancy should always be done. All infected pregnant women should be treated as early as possible, and continuously throughout pregnancy. Any woman known to have had syphilis should be treated continuously throughout her pregnancy despite her blood reaction. We can never say that this particular woman is cured, and if such a woman is constantly under treatment while with child the offspring will not be infected. He raises this question, a healthy baby clinically and serologically negative, but whose mother is known to have had syphilis, should the baby be treated. He states that this question should be answered, yes or no, because this baby either has or has not latent syphilis. He decries the idea of treating such patients for one or two courses depending on the Wassermann, for if the patient has syphilis a little therapy will do much harm, insure a further tardive case and disguise symptoms. He states in considering this question of treating the baby; if a pregnant woman had an infection five years previous to conception, received early and well prescribed treatment, had been under proper treatment and observation since, and had received treatment all during the term of pregnancy this offspring may be considered a healthy non-syphilitic baby and no treatment need be given.

Under the following conditions treatment should be given and the full regime maintained over a course of years. 1. The baby of a mother who has had a fairly recent syphilis regardless of her treatment, this baby should be treated as an undoubted syphilitic. 2. If there is any doubt as to efficacy of treatment given mother formerly, this baby should be dealt with as syphilitic. 3. If the syphilitic infection is discovered in the mother after pregnancy takes place the child should be treated as syphilitic. An ideal treatment would insure a clinical cure with little mental and physical distress, and leave the viscera intact. The author favors arriving at this by less intensive treatment than advised generally, but continuing without interruption over a long period of time, minimum five years. The old regime laid great stress on the time factor or treatement over a period of many years. In the arsphenamine era of the last decade treatment insufficiently followed resulted in early allergic response, tertiary lesions appearing sooner than under the old regime. The systemic defense mechanism gradually develops a resistance in the patient to the infection, and it may not be so well to interfere too early with this natural defensive measure. He advocates starting treatment with the slower acting spirricides using them for a longer period, two to four months of mercury or bismuth, before using the arsphenamines and disregarding the slower clinical and serological response of the patient. With small dosage over a long period of time there is less danger of saturation and overdosage, elimination problems are reduced greatly, sensitivity to drugs detected with milder reactions, and rest periods are eliminated. Combined treatment is not given under the author's plan, that is the simultaneous administration of bismuth or mercury and the arsphenamines, by this he states that rest periods are essential, the danger of interferring with the natural defenses, and the eliminative organs are taxed excessively. He never uses arsphenamine on children, believeing that sulphar-

sphenamine is better, and administers it intramuscularly. His dosage is considerably less than that generally advised. The patients take very small dosages of mercury and potassium iodide three days before the arsenical, and the dosage of neo-arsphenamine never exceeds .3 gm. given no oftener than once weekly. In heredosyphilis the dosage ranges from 0.01 gm. at birth to 0.15 at puberty. Bismuth and mercury are not given intravenously.

Bismuth is a very good drug, well tolerated by children, the dose ranging from 1-8 gr. at birth to 1 gr. at puberty; this however has not entirely replaced mercury as mercury is given by mouth to eliminate the rest period, and a milder acting drug may be wished. Mercury is given by injection—succinimide 1-24 gr. initially or the insoluble salicylates 1-16 gr. Mercury is given orally as soon as practicable, if the injection method cannot be used, if the baby is unable to attend regularly. The following prescription, hydrargyri bichloride 1-8 to 1-250 gr. potassium iodide dram 1 to 11, (dose 2 to 4 grs.) aq. qs. oz. 1. Mercury may be used by inunction ung hydrargyri 50% U. S. P. dr. 1 once a day.

Iodides empirically seem justified, and has beneficial effect on granulomatous tissue, it may be used with mercury as above, and when arsenicals or bismuth is being used he gives moderate doses of iodides three times a day for three weeks.

Routine plan used by him is as follows. First two weeks hg. succinimide (sol) 1-24 gr. three injections per week. Next six weeks, bismuth 1.8 gr. two injections per week. Two years thereafter using a single drug at a time and changing the drug every six weeks. Sulpharphenamine 0.01 gm. at birth to 0.1 gm. at two years; intramuscular injection, once a week for six weeks. Hg. and Kl. or Kl. internally. Mercury salicyate 1-16 gr. to 1-8 gr. Intramuscular injection once a week for six weeks. May substitute Hg. and Kl. Mist. for injection or mercury rub if impracticable. Third, fourth and fifth years each year give about one-half the treatment of the first year. Each year arsenobenzols, two courses of six weekly injections. Mercury and Kl. mist. at intervals.

Transurethral Prostatic Resection versus Operative Prostatectomy. Earl Floyd, M.D., and J. L. Pittman, M.D., Atlanta. Journal of the Medical Association of Georgia. June, 1932. Page 226.

After discussing the etiology, frequency and pathology of prostatic hypertrophy the development of prostatic surgery and resection, the authors compare the dangers involved in the two procedures as follows. There are three danger periods. 1. During the period of decompression, when the bladder is emptying, the kidneys become unbalanced, and the body tissues adjust themselves. At times an indwelling catheter will not suffice and a suprapubic tube must be introduced. This care must be taken whether the gland is resected or removed. 2. Dangers due to anaesthesia, surgical trauma and shock. The anaesthesia is the same, gas, parasacral or spinal. Surgical trauma and shock are not so likely in resection. 3 During convalescence, dangers due to hemorrhage, uremia and infection. Hemorrhage must be considered when the tissue sloughs in resection about the tenth day. It can be easily handled if the patient can be seen early and the bleeding point located. Hemorrhage following operation can be controlled by the Hagner bag. Infection always has to be considered, especially infection of the kidneys.

The value and limitations of resection they sum up as follows; resection is indicated in fibrous bands, median bars, and solitary commissural hypertrophies. Here the entire median lobe can be resected out. In carcinoma in which the condition is too far advanced to bring about a cure resection will temporarily relieve the obstruction. In moderately enlarged and early prostatic hypertrophies resection is of value, because the back pressure changes in the kidneys and bladder are not far advanced. They do not feel that resection can take the place of prostatectomy in markedly enlarged prostates.

One cannot state too emphatically that resection is not a simple procedure, it requires a thorough knowledge of anatomy of the posterior urethra, and skill and experience in manipulation of the resectoscopic instrument.

Some of the Complications of Prostatism and Prostatectomy. Nathanial B. Rathburn, Brooklyn, N. Y., Pennsylvania Medical Journal, May, 1932. Page 541.

The author presents a few of the most important complications of these conditions: 1. Cardiovascular complications; he states that in his belief prostatic enlargement is but one expression of the cardio-vascular changes that occur at this age incidence and cites that in the present period the theories propounded are (1) inflammation, (2) excessive venery; (3) disturbance in hormone balance; (4) vascular. He states that he believes the vascular theory is the most plausible. He has conducted a series of autopsies in patients who have died with and without operation, and those who have died without any symptoms referable to the bladder or prostate. In those of the first group (with and without operation) he invariably found cardiovascular lesions which were out of proportion to the age incidence. The second (those without bladder or prostatic symptoms) some seventy in number who had died from frank cardiovascular lesions were more interesting. These ages varied from childhood up, and in each instance the prostate was sectioned and changes noted which were similar to those in the first group, these changes were noted near the periphery of the gland, and consisted of a dilatation of the follicles with retained secretion. This may be an edema of the ducts due to circulatory stasis. He states that a proper appreciation of these facts have an important bearing on the prognosis, operability and details of pre and post-operative care of the prostatic. Deaths from cardiovascular causes has in his series far exceeded all other causes, this includes emboli, cerebral apoplexy, circulatory failure, and hypostatic pneumonia. He admits that pre-operative most urologists check up on the fenal function, but states that it is just as important to check up on the cardiovascular system, and the best way to do this is in co-operation with a good internist. He mentions that an electrocardiograph should be done on all operative prostatics. as in this way Bundle branch block can be detected for one thing which will have an important post-operative significance, as the contra-indication to the administration of digitalis.

Seminal vesiculitis. All prostatectomies are

done through an infected field, and he states it is desirable for the prostatic to become infected and given time to develop a resistance to the infection. Patients who have had an infection for a long time are better operative risks than one with a clear bladder residual urine. The operation always involves a certain amount of trauma to the ejaculatory ducts, and this coupled with an infection is ideal for extension of the infection into the seminal vesicles. Epididymitis often complicates this condition, and vasectomy as a routine procedure should be done to guard against this complication.

Hemorrhage. The author states that he does routinely the two stage operation, and uses the gauze pack for hemostasis, he discusses the Hagner and Pilcher bags, also the suture of prostatic capsule etc., but prefers the pack, he states that he is able to remove the pack within the first forty-eight hours.

Persistent suprapubic fistula, some 90% of these he believes to be due to some remaining obstruction at the bladder neck. He describes numerous methods of dealing with these, and says that a careful inspection of the bladder neck should be made.

Toxic psychosis, he states that this has occurred in the higher intellectual patients, in those who were private room patients. These patients may carry on for days or weeks in more or less a state of violent insanity. The author states that he has never seen a case of permanent mental impairment. Lumbar puncture has not added any information in these cases. Sepsis is a factor, and a possibility of focus in seminal psychoses have varying degrees of uremia. Another possible factor is the disturbance of the hormone balance. The therapy of toxic psychosis can be summed up in dilution and elimination of toxins and drug control of violent delirium. Enough fluids to keep the tongue moist. For drugs he prefers paraldehyde by the bowel, and hyoscine hypodermically. For support he prefers intravenous glucose.

Surgical Treatment of Median Bar. James C. Burt and Clifford M. Lane, M.D., Pittsburg, Pennsylvania Medical Journal, May, 1932. Page 547.

The authors state that given a patient with symptoms of prostatism it is impossible to distinguish the type of obstruction subjectively. Rectally you may feel a small, firm, irregular prostate. Visual inspection of the bladder neck is important in differientiation. A characteristic appearance of bar obstruction is the cave like cistern seen just as the cysto-urethroscope passes over the bar obstruction into the posterior urethra and before the veru is encountered. Given a patient for this operative procedure, the preparation is just the same as for a prostatectomy. Just as much care is necessary. Pthalein estimation, blood chemistry study, charting intake and output of urine, liberal amounts of water, bladder drainage with indwelling cathether. This period is generally shorter than for prostatectomy. The authors use the electrotome through the McCarthy panendoscope. After introducing the panendoscope the electrotome is put in place and the first incision is made at six o'clock, care being used to cut deep enough. Auxiliary incisions are made at five and seven o'clock for the purpose of enlarging the groove. After finished one should be able to see from the veru montanum through the groove to the base of the bladder. If the patient had a large residual and impairment of renal function a retention catheter is placed in for three or four days. Residual urine may not disappear for two months. The authors believe that much more important than the selection of the type of instrument is the selection of the type of patient. They state that despite the favorable results reported elsewhere they have had satisfactory results only when there was no hypertrophy present.

SURGERY AND GYNECOLOGY

Abstracts, Reviews and Comments from LeRoy Long Clinic
714 Medical Arts Bldg., Oklahoma City

Spinal Zone Anesthesia—Placed at Will and Dosage Individually Graded. Professor Martin Kirschner, Tuebingen, Germany, Surgery Gynecology and Obstetrics, Volume LV, No. 3, September, 1932, Page 317.

This author has devised a rather elaborate means of securing anesthesia by what he terms "spinal zone anesthesia with individually determined dose." He has here written a very comprehensive article reviewing the objections to ordinary spinal anesthesia, giving the apparatus necessary in his method as well as the technic, outlining the principles and precautions together with a brief summary of the clinical results.

He points out that while spinal anesthesia is inherently a splendid method it has been somewhat regarded as a "hit or miss procedure." The objection being that one cannot control either the level to be reached within the dural sac or hold it at the level attained. He also states that there are relatively great differences to the sensitiveness of individuals to the calculated dose, and he feels that a predetermined average dose as used in ordinary spinal anesthesia may be unnecessarily large in one case, producing toxic symptoms, or may prove too small in another case, resulting in unsatisfactory anesthesia.

He objects to the method developed by Pitkin on the basis that it has not overcome these two great disadvantages, ie., (1) spread of the anesthetic solution in the spinal fluid with inaccurate determination of level of anesthesia, and (2) inaccurate individual dosage.

This author has devised a method which he feels makes it possible to have the anesthetic solution placed at will in a definite segment of the spinal cord and maintained there, and in addition allows the dosage to be regulated to the individual patient.

The principle of this method is self-evident from the following quotation:

"1. With the patient placed so that the head is low and the buttocks are elevated, a spinal puncture is done and a certain amount of cerebrospinal fluid is removed and replaced by an equal volume of air. The air bubble collects in the highest portion of the dural sac within the sacral bone. An anesthetic solution, which is lighter than the cerebrospinal fluid and being oil-like is not miscible with it, is injected into the dural sac. The fluid will naturally collect and take its place between the cerebrospinal fluid

and the air bubble. Because it is lighter than the cerebrospinal bluid it cannot spread cephalad and it cannot pass toward the sacrum because of the lighter air.

In view of the fact, however, that the separation into three layers—the cerebrospinal fluid, the anesthetic charge, and the air—will take place rather slowly and incompletely if dependent alone on the slight differences in the specific gravity, it is desirable to carry out still another procedure. This consists in injecting the anesthetic solution through a special cannula the end of which is beveled off at forty-five degrees and which is armed with a lateral opening just above the point (Fig. 1). The solution can be projected a considerable distance cephalad or caudad by turning the lateral opening in one or the other direction. Only the combination of this mechanical force plus gravity will insure a dependable separating out of the cerebrospinal fluid, the anesthetic charge, and the air.

Only those spinal roots which pass through the layer of the anesthetic solution will become anesthetized. The roots corresponding to the layer of air of cerebrospinal fluid will not be thus affected. In this manner we accomplish (1) zone anesthesia (Fig. 10).

2. If to begin with insufficient air is injected or if some of it is aspirated, the anesthetic solution will advance in the direction of caudal roots and the zone of anesthesia will involve the lower extremities (Fig. 11). If considerable air is injected at the first or second attempt, the anesthetic charge will be driven cephalad advancing the zone of anesthesia in the same direction (Figs. 9 and 10) while the legs whose corresponding roots are protected by the area of air will retain their sensibility. In this manner we accomplish (2) a spinal zone anesthesia limited to the upper trunk.

3. Rather than introduce the calculated dose at once, one may begin with a smaller dose, testing the skin sensibility after injection, and adding more anesthetic if necessary, thus securing the desired depth of anesthesia in stages and giving each patient the minimum amount of the drug, neither more or less! We thus secure (3) controllable spinal zone anesthesia with individually determined dose!"

There follows a minute description of the apparatus which is moderately complicated. He then considers the technic of introducing anesthesia. One of the principal precautions of which is the necessity for keeping the body inclined with the head down to at least twenty-five degrees throughout anesthesia, operation and post-operative period. By this method the author has been able to produce real zone anesthesia with, for example, complete anesthesia in the lower abdomen but no anesthesia at all in the chest and legs, made possible by the location of the anesthetic fluid at a definite level, lying between the heavier spinal fluid underneath and the lighter air above it.

He reports 700 cases among which there were 500 laparotomies of which 200 were performed for gastric resection and 70 were operations upon the bile tracts. He does not give any mortality statistics, which of course would be interesting. He does say there is smaller fall in blood pressure than commonly experienced in spinal anesthesia, and that complicating headaches were exceptional and mild.

In upper abdominal operations, particularly on the stomach, he also uses regional anesthesia of the vagus and sympathetic system.

The author then enumerates a list of twelve technical errors possible in the new method of anesthesia. In summary he points out that the decided advantages of this method are, (1) anesthesia of only a selected segment of dural sac with limitation to this area, and, (2) individual dosage, making possible extraordinary reduction in the size of the dose with the diminution of the known and unknown accidents of former methods. He defends the elaborateness of the procedure on the basis that heretofore in spinal anesthesia the anesthetist has been somewhat of a bungling helper whose task consisted in the injection of a definite dose of anesthetic in the spinal canal, whereas in this method individual skill is required in localizing and grading the anesthetic charge as in inhalation narcosis.

Comment: Much work has been done in the field of spinal anesthesia and this is certainly a good work in the right direction. However, it is true that this author, as well as other enthusiasts of a particular method, wishes to apply this means of anesthesia to every patient, whereas individualization is just as necessary in anesthesia as in other therapeutic measures in medicine. The history of spinal anesthesia is a long list of rabid enthusiasts when each new improvement is attained. The method described has several very definite objections for general use. The elaborateness while definitely limiting the field of such procedure to the duties of a well trained anesthetist, where it should ordinarily be anyhow, is not so much of an objection as is the fact that upon the posture of the patient depends his life for a given length of time, which is longer in this type of anesthesia than with ordinary novocain crystals, because it does not "fix" as rapidly in the tissues. Even in well regulated hospitals using Pitkin's spinocaine a few deaths occurred from allowing the patient to sit up shortly after administration of anesthesia.

Wendell M. Long, M.D.

A Study of the Deaths Following 6022 Gynecologic Operations. J. P. Greenhill, B.S., M.D., F.A.C.S., Chicago, Ill., American Journal of Obstetrics and Gynecology, Vol. XXIV, No. 2, August, 1932, Page 183.

This author has presented a brief analysis of the deaths which occurred on the Gynecological Service of the Cook County Hospital from January 1, 1926, to January 1, 1931.

The author's summary follows, which is self-explanatory and gives valuable information because of the large group studied.

"In a series of 6,022 operations performed on the gynecologic service of the Cook County Hospital there were 213 deaths, an incidence of 3.5 per cent. All the patients were charity patients and about 50 per cent of them were negroes.

The mortality rates for the largest groups of operations were as follows: For the 747 abdominal supracervical hysterectomies, it was 0.8 per cent; for the 661 abdominal supracervical hysterecotomies with bilateral salpingo-oophorectomies, it was 8.9 per cent; for the 350 abdominal panhysterectomies with removal of both adnexa, it was 4.3 per cent; for the 449 defunda-

tions with salpingectomy, it was 4 per cent; for the 201 abdominal panhysterectomies, it was 5.5 per cent; and for the 158 vaginal hysterectomies, it was 1.9 per cent.

The most frequent operative diagnoses in the fatal cases were fibroid uterus 69, salpingitis and pelvic inflammation 65, malignancy 31, ovarian cyst 13, and intestinal obstruction 11.

The commonest causes of death in the fibroid group were peritonitis 50.8 per cent; embolism 13 per cent, hemorrhage and shock 11.6 per cent, myocardial failure 10.1 per cent, and pneumonia 7.2 per cent. The chief causes of death for the inflammatory group were peritonitis 61.5 per cent, hemorrhage and shock 21.5 per cent, pneumonia 9.2 per cent, and embolism 3.1 per cent.

The most frequent causes of death for the entire series of 213 cases were as follows; peritonitis and ileus 48.8 per cent, hemorrhage and shock 16.4 per cent, embolism 8.5 per cent, pneumonia 8.5 per cent, malignancy and cachexia 7.5 per cent, and myocardial failure 5.2 per cent.

There were 14 serious complications during operation and 29 grave complications after operation."

Comment: A great deal of gynecological surgery is elective in type and the gynecologist has a grave responsibility, not only in determining the functional, mechanical and vital advantages or operation, but he must also carefully weigh these against the incidence of complications and mortality usual in his hands. There is certainly no better means for the conscientious surgeon to practice introspection than in the careful study of mortality statistics and the complications causing the deaths.

Wendell M. Long, M.D.

Effect of Knee-Chest Position and Postural Exercises on Postpartum Retroversion. Goodrich C. Schauffler, M.D., Portland, Oregon, The Journal of the American Medical Association, Volume 99, No. 9, August 27, 1932, Page 726.

This author's clinical observations of the results of the usual measures empirically prescribed to curb postpartum retroversion suggested to him that the empiricism might be without basis in fact.

He, therefore, studied a group of one hundred sixty-nine cases, half of whom he put on knee-chest position and postural exercises after delivery, whereas the other half were not given such measures. He found that on careful examination, by either himself or his associate, at the end of six weeks there was a substantially high incidence of postpartum retroversions in the group subjected to the so-called corrective measures.

The material used consisted of consecutive deliveries at the Salvation Army White Shield Home. The patients were nearly all strong young women, 90% primiparous, presenting a group relatively free from retroversions from previous pregnancies, prolapse and such complications.

The author has compiled a graphic chart of the percentage in each group.

He feels that it is fair to conclude at least that the use of such exercises does not justify the confidence which has formerly been placed in them. He thinks that it would even be wise to seek for factors in the use of such exercises that might actually retard the tendency toward involution and return to the normal anterior position.

Wendell M. Long, M.D.

Treatment of Carcinoma of the Cervix. Thomas E. Jones, M.D., Cleveland, Ohio, The Journal of the American Medical Association, Volume 99, No. 11, September 19, 1932, Page 880.

This is a report on a series of four hundred twenty cases of cancer of the cervix in patients examined, treated and observed during the period from 1920 to 1931. In this group there were three hundred two cases of primary carcinoma; in eighty there were recurrences following operation or irradiation elsewhere, and in eighteen the lesions were too far advanced for any possible treatment. The author reports twenty-five per cent of the one hundred forty-eight patients treated over five years ago as alive and well.

There is a resume of the technic of radium therapy and complications. All his cases were treated by radium.

This author, like so many others, feels that the largest remaining problem is that of getting the patient to seek medical advice when the disease is still in an early stage.

The discussion by Dr. W. P. Healy of New York is excellent from the standpoint of prophylaxis and early diagnosis, the two most important phases of the treatment of cancer of the cervix today. Dr. Healy makes the statement: "In cancer of the cervix early diagnosis is impossible except by accident. The majority of the cases of cancer of the cervix begin beneath the mucous membrane, are of the anatomically infiltrating type, and fail to give symptoms while they can be regarded as early cases. The only symptom the woman has which may lead her to suspect cancer is the appearance of blood as the result of contact, following intercourse or the use of a douche tube, or occurring between periods from ulceration. She cannot have bleeding without having destruction of tissue, and destruction of tissue must mean open lymphatics, through which cancer cells are readily disseminated beyond the primary focus. This is why early cases are not seen. Ninety-four per cent, approximately, of these cancers of the cervix develop in women who have borne children. I believe more attention should be given to prophylaxis in cancer of the cervix, probably much more than to treatment."

Dr. Healy also quotes from the report made by Dr. Graves from the Brooklyn Free Hospital for Women in Boston, in which they studied the low incidence of cancer of the cervix occurring in cases after cervical operations and cauterization.

Wendell M. Long, M.D.

Pelvic Diagnosis By Roentgen Visualization. Irving F. Stein, M.D., F.A.C.S., Chicago, Illinois. Surgery, Gynecology and Obstetrics, Volume LV, Number 2, August, 1932, Page 207.

This author reviews the advantages of roentgen visualization as connected with pelvic diagnosis. He describes the technic used at the Michael Reese Hospital together with the type of special

table, special speculum and self-retaining cannula. He briefly outlines the contra-indications as well as some of the precautions to be taken in the procedure.

The group with which Dr. Stein is associated has been very careful, but at the same time progressively active in helping to develop this newer type of diagnosis, and unquestionably, there is considerable worth to their method of both uterosalpingography as well as the combined uterosalpingography and pneumoperitoneum.

Dr. Stein closes the article with the well advised admonition, " A judicious selection of patients, after consideration of the menstrual history, and a careful general and pelvic examination, and a deliberate and painstaking technic roentgenograms."
are essential to obtain satisfactory diagnostic

Comment: This, like many other types of diagnostic methods, should be employed only after the most careful history and examination, and as Dr. Stein remarks, should be used only after a very judicious selection of patients. With these precautions such investigative means can be of invaluable aid.

Wendell M. Long, M.D.

Avertin in Gynecology—A Report of Three Hundred Consecutive Cases. Reuben Peterson, M.D., F.A.C.S., Ann Arbor, Michigan, and James M. Pierce, M.D., F.A.C.S., Cincinnati, Ohio. Surgery, Gynecology and Obstetrics. Volume LV, Number 2, August, 1932.

These authors report a series of three hundred consecutive gynecological operative cases in which avertin was used as the only anesthetic in one hundred eighty-six patients, and as the principal anesthetic plus nitrous oxide in one hundred ten patients, and as the principal anesthetic plus ether in only four patients. Of these three hundred cases one hundred seventy-two were laparotomies and one hundred twenty-eight vaginal operations. Their technic is carefully recorded and a comprehensive table of types of operations and results given.

These very reliable authors feel that "avertin more nearly approaches the ideal anesthetic than any other drug which has been employed in the clinic because it—

1. Induces a deep sleep very smoothly.

2. Causes very little postoperative nausea and vomiting.

3. Produces a complete amnesia.

4. Fewer gas pains follow its administration.

5. It irritates none of the body organs, either in the process of its administration or its elimination."

They report that in this series they have no post-operative complications with the anesthetic, and no deaths.

Comment: At this time when many different kinds of anesthetics are being employed we are all deeply interested in using the most ideal means of producing anesthesia, but it has always seemed to me that the individual patient, the procedure to be done, and related conditions were of importance in determining the type of anesthesia. In other words, there are advantages to every anesthetic as well as disadvantages, and they all have their particular field of application, so that it would be difficult to recommend one particular anesthetic for general use. Individualization of indications is far more important.

Wendell M. Long, M.D.

A Study of Cancer of the Stomach. C. P. Howard, M.D., F.R.C.P. (C) and C. W. Fullerton, M.D., Montreal. The Canadian Medical Association Journal, September, 1932.

The first part of this article is devoted to an exhaustive and instructive review of the cancer question which seems to show that the death rate from cancer is mounting. Reference is made to the post-mortem statistics from England which show an incidence of 1 per cent of cancer of the stomach among 8,462 autopsies; to statistics from Vienna which show 1.47 per cent of cancer of the stomach among 61,287 autopsies—"a figure probably nearer the truth than any one hospital series."

An analysis is made of 255 cases of cancer of the stomach admitted to Montreal General Hospital during the last ten years. The average age of onset was about 56 years. Eighty per cent occurred between 40 and 70, but there were 17 cases under 40. Three patients with sarcoma were from 17 to 28 years.

In 18.7 per cent there was a history of malignancy in the family. The authors believe that there should be a careful investigation in connection with the question of heredity.

Past gastric disturbances were not significant, and the authors "found little to substantiate the view that previous gastric disturbances predispose to carcinoma." While 22 per cent gave a history of long standing dyspepsia, it is the conclusion that "the role of gastric ulcer as an etiological factor seems to be a very minor one."

In this series syphilis and alcoholism were rarely encountered, "and certainly played no etiological role." In one patient the onset followed a severe blow in the epigastrium.

The average length of duration of symptoms was 9.2 months, but in 50 per cent there was a history under six months. Still more striking, 25.5 per cent had a history covering three months or less. Several patients had noticed symptoms only three weeks or less.

In 23.2 per cent there was a history of acute or sudden onset. This is explained by the assumption that carcinoma may involve the stomach wall for a time without definite symptoms, these appearing only when there is encroachment upon the lumen, especially in the region of the pylorus, when there are pain and evidences of obstruction.

The symptoms of onset varied, but pain predominated, occurring in 46.5 per cent of patients. Weakness, anorexia, vomiting and dyspepsia were the next most frequent initial symptoms, one or more occurring in 13.5 per cent. Haematemesis was the initial symptom in four cases. In three cases the patients were first disturbed when there was jaundice, swelling of abdomen, dysphagia and palpable abdominal tremor. Only three patients complained of loss of weight as first symptom, suggesting that "loss of weight is secondary to and commensurate with, the loss of appetite."

The symptoms on admission were varied, but in

88.2 per cent the chief symptom on admission was pain. In some it was slight soreness, in others acute and stabbing, but in the majority (62 per cent) it was dull and gnawing. As a rule, the pain was located in epigastrium, but in a few it was in gall bladder region, about the umbilicus or over the entire abdomen. In eleven patients with carcinoma of cardiac portion of stomach there was pain under sternum or in lower chest; in two there was pain in lower abdomen, and in two the only pain was in left costo-lumbar region. In 60 per cent there was a definite relation of pain to taking of food, the pain occurring at once or at any time up to three or four hours after eating. Nocturnal pain was rare, it occurring only three times in the series.

On admission there was complaint of dyspepsia —gaseous eructations, fullness in connection with pain—in 94 per cent. In 89 per cent there was partial or complete anorexia, and vomiting in 67 per cent. There was blood in the vomitus in 16.4 per cent of the series. There was weight loss in 96.5 per cent, and practically all complained of weakness.

Constipation was noted in about half the patients, diarrhea in 8, and in 9 constipation alternating with diarrhea, this latter suggesting invasion of the colon.

Fever was noted in 38.7 per cent. In this connection, the authors quote Friedenwald, and Osler and McCrae "who noted fever in 43 per cent, and in 49 per cent, of their cases, respectively."

On admission, there was cachexia in 63.4 per cent of the patients, this terminal condition being definitely indicative of disastrous delay.

There was abdominal tenderness in 54.7 per cent, and in 41.4 per cent there was abdominal resistance on palpation. In 33 per cent the liver was palpable; in 12.5 per cent, there was jaundice, and in 10 per cent ascites.

There were metastases in 33.7 per cent., the liver being involved 63 times, the peritoneum 14 times, Virchow's "sentinel gland" 8 times, the abdominal wall 5 times, neck glands 2 times, spinal cord (presumably spinal column—L.L.) 1 time. In one case it appeared that the carcinoma of the stomach was secondary to carcinoma of the breast.

The authors believe that the red blood cell count is of but little aid in the diagnosis early in the disease. The anemia seems to bear a direct relation to the amount of blood lost.

The white blood cell count was interesting in that 31.2 per cent showed a leucocytosis of 9,000 to 18,200. The differential W.B.C. was practically normal.

Blood was found in the stools (benzidine test for occult blood) in 74.5 per cent of the patients.

In general, the Ewald test showed either absence or great diminution of HCL. Occult blood aspirated from stomach was present in 60 per cent; lactic acid in 19 per cent; Boas-Oppler bacilli in 7.9 per cent.

In 201 patients there were radiographic examinations of the stomach after a barium meal, and in 87.5 per cent, there was accurate diagnosis of carcinoma.

There was six hour retention in 44.7 per cent, and in 25.3 per cent the retention was extreme.

The pylorus was by far the most common site of the tumor—102 cases. The greater curvature, the lesser curvature, the cardiac end, were involved in 18,20 and 20 cases, respectively.

The treatment was altogether unsatisfactory. Exactly one-half—127—were submitted to operative treatment, and in 56 of these nothing could be done. Palliative procedures were carried out in most of the others. In only 8.8 per cent was it possible to perform gastrectomy with a fair chance of success.

A pathological disgnosis was made in 109. In 59 there was adenocarcinoma; carcinoma simplex in 34, colloid carcinoma in 6. In 9 cases the entire stomach was involved, the picture being that of linitis plastica.

"Ulceration of the tumor was noted in 31 cases, but in only 2 instances was the carcinoma thought to be secondary to a chronic indurated ulcer."

The article closes with the definite advice that "every patient of middle age who has gastric symptoms should be suspected, the more so if the history is of short duration; secondary, even if all methods of examination are negative, an exploratory laparotomy is indicated if the history and symptoms are suggestive."

—LeRoy Long.

Simple Goitre—Its Racial Incidence and Its Relation to Nutrition. A. Clifford Abbott, B.A., C.M., F.R.C.S. (Edin.) Winnipeg. The Canadian Medical Association Journal, September, 1932.

An analysis of the incidence of goiter in 30,715 school children in Winnipeg having the same municipal water supply shows that the percentage is very high in Central European and Jewish races—Ruthemian, Jewish, Russian, German, Hungarian, Latarian, Austrian — from 23.1% (Austrians) to 38.5% (Ruthemians). The incidence is relatively low in English, Scotch, Irish, Welch and Icelandic—from 8% (Icelandic to 13.4% (English).

Considering sanitary conditions, hours of sleep, opportunities for play and diet, there does not appear to be any marked difference except in the case of diet. The author shows that in the first group (Central European) the diet is not well balanced. He points out particularly that with all the races represented in this group boiled cabbage is a staple article of diet, with the exception of the Jewish in which the average diet carries an overabundance of fat.

Reference is made to the experimental work of Chesney, Clowson and Webster, (John Hopkins Hospital Bulletin, 1928), which showed that a large percentage of experimental animals (rabbits) fed largely on cabbage developed large goiters with low basal metabolic rates.

Comment: Through the fine courtesy of Dr. H. J. G. Geggie, Wakefield, Quebec, I had the opportunity of seeing some two dozen cases of goiter in a French farming community in the Gatinean district of Quebec during a drive of a couple of hours one afternoon. Practically all of them were of the large non-toxic colloid type. Dr. Geggie tells me that in this district cabbage is not eaten to an extent beyond the average.

—LeRoy Long.

BOOK REVIEWS

The Sputum, Its Examination and Clinical Significance. By Randall Clifford, M.D., Associate in Medicine, Peter Bent Brigham Hospital; Assistant in Medicine, Harvard Medical School; Formerly Associate Physician and Director of Pulmonary Clinic, Massachusetts General Hospital. Seven Colored Plate Illustrations, Twenty-one Photographs. Cloth, Price $4.00. The MacMillan Company, New York.

Mental Deficiency Due To Birth Injuries. By Edgar A. Doll, Ph.D., Director of Research, The Training School at Vineland; Winthrop M. Phelps, M.D., Professor of Orthopedic Surgery, Yale University School of Medicine; Consultant on Birth Injuries, The Training School at Vineland; Ruth Taylor Melcher, M.A., Research Assistant, The Training School at Vineland, N. J. Cloth, 289 pages. Price $4.50. The MacMillan Company, New York.

Birth injuries are probably the most tragic occurrences happening to mankind. The expectant mother and the family cannot realize the tragic end results of such injuries. Neither does anyone realize the care the child must have, not only throughout its childhood but for the remainder of its life.

This book has for its object, the retaining, as far as possible, the correction of any abnormality which may be corrected. The handling of these cases is necessarily a continuous and long performance. Many of the children make remarkable progress especially where injuries are motor disturbances rather than mental; often the children are very bright but are utterly helpless physically. There is no question but what the problem is one belonging to the orthopedist, occasionally to the surgeon, the neurologist and rarely to the family physician.

Posture, Its Relation To Health. By Frank D. Dickson, M.D., Orthopedic Surgeon, Saint Luke's Hospital and the Kansas City General Hospital, Kansas City Mo. 118 Illustrations, Leather, Price $5.00. J. B. Lippincott Company, Philadelphia and London.

Many unnecessary deformities may be corrected and prevented by early treatment. Dickson lays special stress upon the correction of these conditions, many of which originate in childhood and youth.

Functional Disorders of The Gastrointestinal Tract. By William Gerry Morgan, M.D., F.A.C.P., Professor of Gastroenterology, Georgetown University Medical School; Consulting physician, Georgetown University Hospital, Garfield Memorial Hospital, and Gallinger Hospital, Washington, D. C. 32 Illustrations Leather, Price $5.00. J. B. Lippincott Company.

Many of the woes of mankind come from overlooked and neglected disorders of the gastrointestinal tract. Dr. Morgan, in this book, considers Physiology, various examinations of the patient, a General Discussion, the Motor Neuroses, the Secretory Neuroses, Sensory Neuroses, Motor-Secretory Neuroses and miscellaneous Symptoms and Conditions.

Orthopedics In Childhood. By William L. Sneed, M.D., Attending Surgeon, Hospital For The Relief of The Ruptured and Crippled; Fifth Avenue Hospital; Consulting Surgeon, French Hospital; Nassau County and North Shore Community Hospitals; Instructor, Applied Anatomy Corneil Medical College. 145 Illustrations, Leather, Price $5.00. J. B. Lippincott Company, Philadelphia and London.

There are many orthopedic conditions, originating in childhood, which if discovered early and treated intelligently, may be entirely cured, or greatly benefitted. The principal thing is to hold the progress at least in the conditions at the point noted when first discovered. Many deformities, postural and actual may be entirely eliminated, or so greatly benefitted that they are hardly discoverable, if they have logical and early orthopedic treatment. The child with a moderate condition, which is surely to grow worse as age advances should have the advantage of skilled orthopedic treatment. While much of this may be done by the intelligent family physician, certain orthopedic consultations should be had often enough to check up on proper treatment and care for the condition in hand.

This volume contains fifteen chapters with proper subdivisions and should be in the hands of every practitioner.

Essentials of Pathology. By C. Russell Salsbury, M.D., C.M., Professor of Anatomy, University of Oklahoma. Cloth, Illustrated, 270 pages. Price $2.00. The MacMillan Company, 60 Fifth Ave., New York, 1932.

The author, in his preface to this volume, states that it is the fruits of nearly four years of work, and consists of enlarging the notes and scope of its contents during that time to include the new concepts of pathology; that controversal matters have been clarified, and that it is neither encyclopedic or a synopsis. He has presented those aspects of pathology that have a definite bearing on disease, as seen clinically. Such a work is of value in that it connects up the pathological findings of the given case with the clinical aspects, both of which must be considered if the practitioner is to successfully handle his problems. It is subdivided into nineteen chapters and index, very important of which are those devoted to the specific infectious diseases and the digestive system. Oklahoma physicians should feel especial interest in the work, in that it is a product of one of our colaborers, is well written, lacks dryness, and is therefore entertaining.

Functional Disturbances Of The Heart. By Harlow Brooks, Attending Physician, Fourth Medical Service, Bellevue Hospital. Consulting Physician, City Hospital, Montefiore Hospital, Beth Israel Hospital, St. Vincent's Hospital, Fifth Avenue Hospital, Hospital For Joint Disease, Polyclinic Hospital, French Hospital, and Consulting Physician to St. John's Hospital and St. Joseph's Hospital, Yonkers, to The Greenwich Hospital, Greenwich, Conn., to The Hackensack Hospital, Hakensack, N. J., The Southside Hospital, Long Island, etc. Emeritus Professor of Clinical Medicine, New York University, and

Bellevue Hospital Medical College. Leather, Price $5.00.

Functional Disturbances of the Heart seem just as serious to the patient as those of organic origin, so it is up to the physician in charge to determine as early as possible which type of heart condition he is dealing with. It is also up to him, if possible, to determine the cause of the functional disturbance and remove it. Naturally the physician should be very careful in making dogmatic statements as to the condition found, based upon his opinion, for his patients often become neurotic, engendering the fear of sudden death and making their lives generally miserable.

Harlow Brooks is recognized as one of our national authorities on heart conditions. This volume is divided into eleven chapters, with many subdivisions. The book is beautifully bound and so written that it is one of rarity — a medical book easily read.

Behind The Door Of Delusion. By "Inmate of Ward 8," Cloth, 325 pages, Price $2.00, The MacMillan Company, 1932.

This book for obvious reasons is written anonymously, by a bright observer, who is not a psychotic, but admits that he voluntarily agreed to incarceration in order to free himself from years of alcoholism. In a strict sense such a man has no business in a hospital for the insane, but no one can question that he adopted a manly course in order to save himself from becoming a complete wreck. The twenty-one chapters fairly glow with wit and pathos, but they state conditions of patients, personnel and medical attendants of the "State Hospital" as it exists throughout the United States. The writer makes one suggestion more than worth while, and that is that before any person is finally admitted as an inmate he should be observed by skilled physicians rather than the hurriedly, usually unqualified board of physicians, usually picked up at random by a busy judge, and often without the slightest knowledge of, or interest in nervous and mental diseases. The writer facetiously dedicates the book to a better understanding of those on the inside by those who are not yet locked in. His years of editorial work on large newspapers gives him a commanding advantage in telling his interesting story.

CORRESPONDENT OUT OF HUMOR

The present indications are that, not only me, but plenty of small town and country doctors will go out of business in the very near future. The State legislature will meet next year and the plans are already set for a bill to take all medicines from doctors and only allow them a pad of prescription blanks with pharmaceutical union label on them; and maybe two morphine tablets and three or four tablets of aspirin.

In this little place we have only one drug store, which is operated by a man of eighty years of age, nearly blind and very contrary, and who won't keep anything but the cheap, common drugs. Some of the people won't take a prescription to him. The wholesale houses of Ft. Smith and Oklahoma City won't sell me any drugs and tell me to go to him. (He is a hold over from territorial days and was never in a school of pharmacy a day, and does not even have a common school education).

If times were good I would be working under difficulties on this account and now nine-tenths of the people are without money. I think I will let the business go on till January and if no better all I can do is to get to other work. I have a master's degree in the teachers line and can make more money teaching a one room country school than I am making now.

C. R. MORRISON, M.D.
Red Oak, Oklahoma.

LETTER FROM DR. LE ROY LONG

Ottawa, Ont.
September 17, 1932.

Dr. Claude A. Thompson,
Muskogee, Oklahoma.

Dear Dr. Thompson:

Last week I attended the 12th Congress of the French Speaking Physicians of North America at the Chateau Laurier, Ottawa, Ont., Canada, and I have thought that the readers of the Journal might be interested in an article about it.

The official name of the organization is, "Association des Medecins de Langue Francaise de l'Amerique du Nord." It is an unique group, organized thirty years ago (1902) in Quebec. Since then it has met in Congress (Congres) every two years with the exception of the period covered by the World war and the readjustment immediately following it.

I have not seen a copy of the governing regulations, but three purposes are apparent: 1. The perpetuation of the conquests and traditions of French medicine. 2. The preservation of the vital solidarity of the French speaking medical profession of North America. 3. The encouragement of the study of French medicine through the literature, through associations, and through clinical contact.

In the official work of this Congress every word was in French. But that does not mean that the French Canadian physicians do not speak English. On the contrary, and practically without exception, they speak English fluently. I suppose there is no place in the world—not even in Switzerland—where educated people have such freedom and elasticity in bilingual intercourses as among the French physicians of Canada. It is not uncommon to find an English speaking physician who does not speak French, notwithstanding he may be surrounded by French speaking people, but I have yet to find a French Canadian physician unable to express himself intelligently by the use of the English language.

This Congress in Ottawa is the first outside of the Province of Quebec—and it is barely outside, for just across the beautiful Ottawa river is the French city of Hull, in Quebec. The next Congress, in 1934, will be held in the city of Quebec.

The formal opening of the congress (Ouverture Solennelle) took place in the ball room (salle de bal) of the Chateau Laurier at 2:00 P. M., Tuesday, September 6, and this was immediately followed by the scientific programme.

The Congress was not divided into sections. All papers were read; all demonstrations made

at a general meeting of the Congress (Seance pleniere).

After the first day the work of the programme was begun at 10:00 A. M., daylight saving time. There were sessions in the afternoon and in the evening. Papers and demonstrations quickly suceeded each other, usually without discussion. The intense, rapid-fire work was a distinctive feature, and strikingly reminded me of the Inter-State Post-Graduate Medical Assembly.

There were four distinguished guests from Paris—M. le Docteur Antonin Clerc, a celebrated authority on diseases of the cardio-vascular system; M. le Docteur Gaudard D' Allaines, a surgeon of note; M. le Docteur Maurice Chevassu, an enthusiastic urologist, and M. le Docteur Robert Ducroquet, no less enthusiastic orthopedist. Each of these held clinics at the two principal hospitals (the General and the Civic) from 8:00 to 10:00 in the mornings.

The first paper on the scientific programme—Clinical Forms of Myocardial Infarction (Formes cliniques de l'infarctus myocardique) was by Clerc. There was nothing strikinkly new in what he said, but he is a very earnest man, who is able to present a subject in such a way that it seems complete. He is a pupil of Vaquez, and has high regard for his old master.

As will be seen from the programme I am sending with this, the papers covered a wide field. In all, about forty subjects were discussed before one group in two and a half days.

I am enclosing a list of those registered up to the morning of the second day. Many registered after that time. I an informed by M. le Docteur Eugene Gaulin that the total registration was about four hundred. I was told, also, that the organization has nearly four thousand members.

The Congress was terminated by a banquet at which M. le Docteur Valin, retiring president, presided. Several speeches were made, including a very happy one by Prof Clerc.

The principal officers for the next two years are: President M. le Dr. Albert Paquet, Quebec; Secretaire du Congres, (Corresponding Secretary), M. le Dr. J. Vaillancourt, Quebec; Secretaire Archiviste (Recording Secretary), M. le Dr. Donatien Marion, Montreal; Tresorier, (Treasurer) M. le Dr. Paul Garnau, Quebec.

The proceedings of the Congress (Les Comtes Rendus du Congres) will be published soon. I shall have the opportunity to study the contributions in surgery, and to prepare some abstracts of the more important ones.

Yours trusly,
LeRoy Long.

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